Annual Drinking Water Quality Report

2016–17

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Regional Water Services Operator

Document approval and issue notice

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Amendments in this release:

Section title	Section number	Amendment summary
All	1-6	Minor updates
Catchment	3.3.3	Minor corrections
System summaries	6.0	Minor corrections

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Executive Summary

TasWater's 2016-17 Annual Drinking Water Quality Report (ADWQR) is a review of our performance for the financial year ending 30 June 2017.

TasWater is responsible for managing:

- 70 drinking water systems and 1 monitoring zone
- 61 water treatment plants
- 6,266 kilometres of water mains
- 227,225 water supply connections

Overview of annual drinking water performance

Key results of our 2016-17 drinking water performance indicate that:

- 100.0 percent (46 of 46) of potable systems met microbiological compliance
- 77.5 percent (55 of 71) of all systems met microbiological compliance (including systems under health alerts)
- A total of 20 systems and 1 monitoring zone were operated under a Boil Water Alert (BWA)
- A total of 4 systems were operated under a do not consume alert (DNC)
- A total of 9 *E. coli* detections in compliance samples occurred in potable systems
- There were 10 public health non-compliances rated serious all relating to BWAs
- 8 systems recorded disinfection by-products (DBPs) above Australian Drinking Water Guidelines (ADWG, 2011) health limits
- 4 systems experienced issues with metal concentrations above the ADWG health limits
- All systems were free of pesticide exceedances in the source water/catchments above ADWG limits
- There were no detections of fluoride above the ADWG health limit of 1.5 mg/L.

Water is our most important product and to ensure consistent management of drinking water from catchment to tap, we employ the best practice risk management principles described in the ADWG.

Whilst we strive to meet guidelines for health and aesthetic characteristics, this can be challenging to achieve across such a vast number of water supply systems across Tasmania. This is most acute in a number of our regional water systems supplying small towns with systems requiring upgrade. We recognise the opportunities for improvement and provide information on the projects currently underway that will provide safe drinking water to our customers.

Our drinking water quality performance against strategic objectives

Performance during the 2016-17 reporting period, measured against our corporate key performance indicators (KPIs), detailed in Table 1, indicates:

- 100% of potable systems are compliant with the ADWG microbiological guidelines
- 25 towns were subject to health alerts (BWA or PHA) against a target of 20
- 97.3% (36 of 37) of fluoride dosing systems operated with a mean annual dose between 0.8 – 1.2 mg/L
- There were 10[1] public health non-compliances, 9 relating to the issuing of BWA's in disinfection only systems as a result of high turbidity impacting on effectiveness of disinfection. The other BWA was related to TasWater taking ownership of Bronte Park where the current treatment is not able to mitigate catchment risk.

Table 1: Performance of key indicators against targets detailed in our Corporate Plan FY2016-18

Key Performance indicators	2016-17 Actual	2016-17 Target	2017-18 Target	DHHS long-term goal
Percentage of potable systems compliant with ADWG microbiological guidelines (%)	100%	98%	98%	100%
Number of towns[2] on long term BWA or PHAs	25	9	8	0
Percentage of systems compliant with average fluoride concentration within target range 0.8-1.2 mg/L (%)	97.3%	99%	99%	100%
Number of public health non-compliances	10[1]	0	0	0

Our drinking water quality strategic objectives

Our key strategic drinking water initiatives for the FY2017-19 period are:

- Investing in the Regional Towns Water Supply Program to provide safe drinking water to a number of small towns in regional Tasmania (www.24glasses.com.au)
- Applying best practice through risk assessments, process audits, catchment surveys and establishing critical control points
- Improvements to fluoridation and chlorination and the installation of new technology to aging water infrastructure.

[1] There were 6 actual BWAs notices issues
[2] Towns versus systems: 20 systems and 1 zone were on BWA. The Greater Hobart – National Park zone covers 3 towns (Fentonbury, Westerway and National Park)

Major works and ongoing initiatives

There are a number of regional towns around Tasmania that cannot turn on their tap to a clear glass of water that is safe to drink. TasWater made a commitment to accelerate our program addressing the water quality issues in these towns and systematically working to remove public health warnings by August 2018:

- The Regional Towns Water Supply Program – we removed alerts in 2 towns this financial year including the Scamander BWA (removed in November 2016) and the Whitemark DNC (removed December 2016)
- The public health warnings in Avoca, Branxholm, Derby, Lady Barron, Legerwood, Mole Creek, Mountain River, Pioneer, Ringarooma and Winnaleah were also removed between July and September 2017.

In addition to projects relating to construction and commissioning of new assets over the financial year, we have also made significant progress in understanding our risks from catchment to tap including:

- **Compliance monitoring** – the drinking water compliance monitoring program was reviewed and updated to ensure compliance with ADWG
- **Water system optimisation team** – the establishment of this team has helped accelerate improvements in water quality and reduce public health risks
- **Catchment surveys /risk assessments**– we conducted catchment risk assessments for 6 water supply systems, including the new Ringarooma Scheme. This work identifies water quality risks and ensures treatment barriers are sufficient to mitigate risk.

To demonstrate our commitment to our customers of providing clean and safe drinking water we also focus our efforts on proactive strategies:

- **Water quality complaints working group** - establishment of a complaints working group to analyse the causes of water quality complaints and then determine appropriate action plans to address underlying issues
- **Taste and odour panel** – establishment of an internal panel to routine taste test supply water for presence of MIB or Geosmin and to provide comments for water quality investigations
- **Innovation and research** – investing in research and trialling new technologies to assist with risk management and improved performance in drinking water systems.

Looking ahead, we plan to spend more than $200 million on improved drinking water quality in the period 2018 to 2021, which is fully budgeted for in TasWater's latest Price and Service Plan.

Our commitment to you

We are committed to ensuring safe supply of drinking water and the health of our customers is our highest priority and core business responsibility. Furthermore, we are committed to providing our customers and the Tasmanian public with information on the quality of their drinking water.

Our drinking water quality performance is available on quarterly basis at

www.taswater.com.au/Community---Environment/Your-Water

We welcome any comments or feedback by phone 13 69 92 or email at waterquality@taswater.com.au.

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Glossary/List of acronyms

Acronym/term	Meaning
µg	Microgram
ADWG	Australian Drinking Water Guidelines
BGA	Blue green algae
BWA	Boil water alert
DAFF	Dissolved air flotation and filtration
DHHS	Department of Health and Human Services
DNC	Do not consume
DPB	Disinfection by-product
DPIPWE	Department of Primary Industries, Parks, Water and Environment
DWQMP	Drinking water quality management plan
GAC	Granular activated carbon
Geosmin	Algal metabolite
KPI	Key performance indicators
L	Litre
MRL	Method limit of reporting – lowest reliably detectable level
M	Million
mg	Milligram
mg.min/L	Milligram minutes per litre
MIB	2–methylisoborneol (algal metabolite)
mL	Millilitre
MPN	Most probable number
N/A	Not applicable
ng	Nanogram
NTU	Nephelometric turbidity unit (measure of turbidity)
PAC	Powdered activated carbon
PBWA	Permanent boil water alert
Potable	Water classified fit for consumption by DHHS
PSP	Price and service plan
TDWQG	Tasmanian Drinking Water Quality Guidelines
SCADA	Supervisory Control and Data Acquisition
TBWA	Temporary boil water alert
THM	Trihalomethanes (disinfection by-products)
WHO	World Health Organization
WTP	Water treatment plant

1.0 Introduction

This ADWQR fulfils the requirements of Section 13 of the Tasmanian Drinking Water Quality Guidelines (TDWQG) issued under the Public Health Act (1997) by the Director of Public Health.

The National Health and Medical Research Council (NHMRC) define the requirements for the safe supply of safe drinking water as specified in the Australian Drinking Water Guidelines (ADWG, 2011).

We work closely with the Department of Health and Human Services (DHHS) to ensure best practice management of drinking water supplies and we recognise the need to be open and transparent to the public.

2.0 TasWater drinking water systems

TasWater manages 71 drinking water systems consisting of 87[2] zones across Tasmania.

- Approximately 93.6% of Tasmania's population is connected to TasWater's drinking water supply network
- 47 systems operated as Potable and safe to drink directly from tap
- 20 systems and 1 zone in Greater Hobart operated under Boil Water Alerts (BWA) due to microbiological contamination
- 4 systems operated under a Public Health Alert (PHA) due to elevated metals.

The Greater Hobart drinking water system is the largest in Tasmania consisting of 10 supply zones as the monitoring system is supplied from multiple water sources. The Huon Valley drinking water system is an interconnected network and therefore has 8 water supplies zones. The Greater Hobart and Huon Valley drinking water systems are the only systems in Tasmania made up of multiple supply zones.

The 4 systems operated under PHAs were provided with potable water tanks as an alternative water supply. The potable tank water is sourced from a fully treated potable water source as noted in Table 2. The tanks are located in publically accessible areas with storage levels maintained according to demand. The tanks were subject to weekly sampling to ensure water complied with health microbiological guidelines. All other testing for ADWG regulated parameters is performed in the source system and results are available in the relevant system reports in Section 6.0.

In addition, the following table lists the number of connections for each system, the catchment name or water source is listed along with the treatment process and whether the water supply is fluoridated.

[2] The Greater Hobart drinking water system consists of 10 water supply zones, while the Huon Valley system has 8 discrete water supply zones

Table 2: System Summaries status as of 30 June 2017

System /Monitoring Zone		Status	Tank water source	Connections	Catchment name/water source	Treatment process	Fluoridated supply
Adventure Bay		Potable		1	Bore	Disinfection only	No
Avoca		PHA (DNC)	Scottsdale	132	South Esk River	Disinfection only	No
Bicheno		Potable		956	Aspley River	Full treatment	Yes
Bothwell		Potable		291	Clyde River	Full treatment	No
Bracknell		Potable		200	Liffey River	Full treatment	No
Branxholm		BWA		189	Ringarooma River	Untreated	No
Bridport		Potable		1183	Brid River	Full treatment	Yes
Bronte Park		BWA		61	Bronte Canal	Disinfection only	No
Cam River		Potable		4520	Cam River	Full treatment	Yes
Campbell Town		Potable		886	Elizabeth River	Full treatment	Yes
Colebrook		BWA		107	Strainers Creek	Disinfection only	No
Coles Bay		Potable		296	Saltwater Creek	Full treatment	No
Conara		BWA		46	South Esk River	Disinfection only	No
Cornwall		BWA		79	Fanshaft spring	Untreated	No
Currie		Potable		586	Bore	Disinfection only	No
Deep Creek		Potable		2424	Deep Creek	Full treatment	Yes
Deloraine		Potable		1343	Meander River	Full treatment	Yes
Derby		BWA		147	Irrigation scheme	Untreated	No
Distillery Creek		Potable		18388	Distillery Creek / St Patricks River	Full treatment	Yes
Dover		Potable		729	Esperance River	Full treatment	Yes
Dowlings Creek		Potable		104	Dowlings Creek	Full treatment	No
Ellendale		Potable		83	Jones River	Full treatment	No
Epping Forest		BWA		28	South Esk River	Disinfection only	No
Fingal		Potable		339	South Esk River	Full treatment	No
Forth River		Potable		18159	Forth River	Full treatment	Yes
Gawler River		Potable		6062	Gawler River	Full treatment	Yes
Gladstone		BWA		90	Ringarooma River	Untreated	No
Gormanston		BWA		56	Unnamed basin	Untreated	No
Grassy		Potable		156	Grassy River	Full treatment	No
Greater Hobart	Brighton	Potable		7011	Derwent River	Full treatment	Yes
	Clarence			22540	Risdon Brook	Full treatment	
	Coal Valley			734	Derwent River	Full treatment	
	Glenorchy			24240	Knights Creek	Disinfection only	
	Hobart			26247	Sandy Bay Rivulet	Disinfection only	
	Kingborough			12446	Sandy Bay Rivulet	Disinfection only	

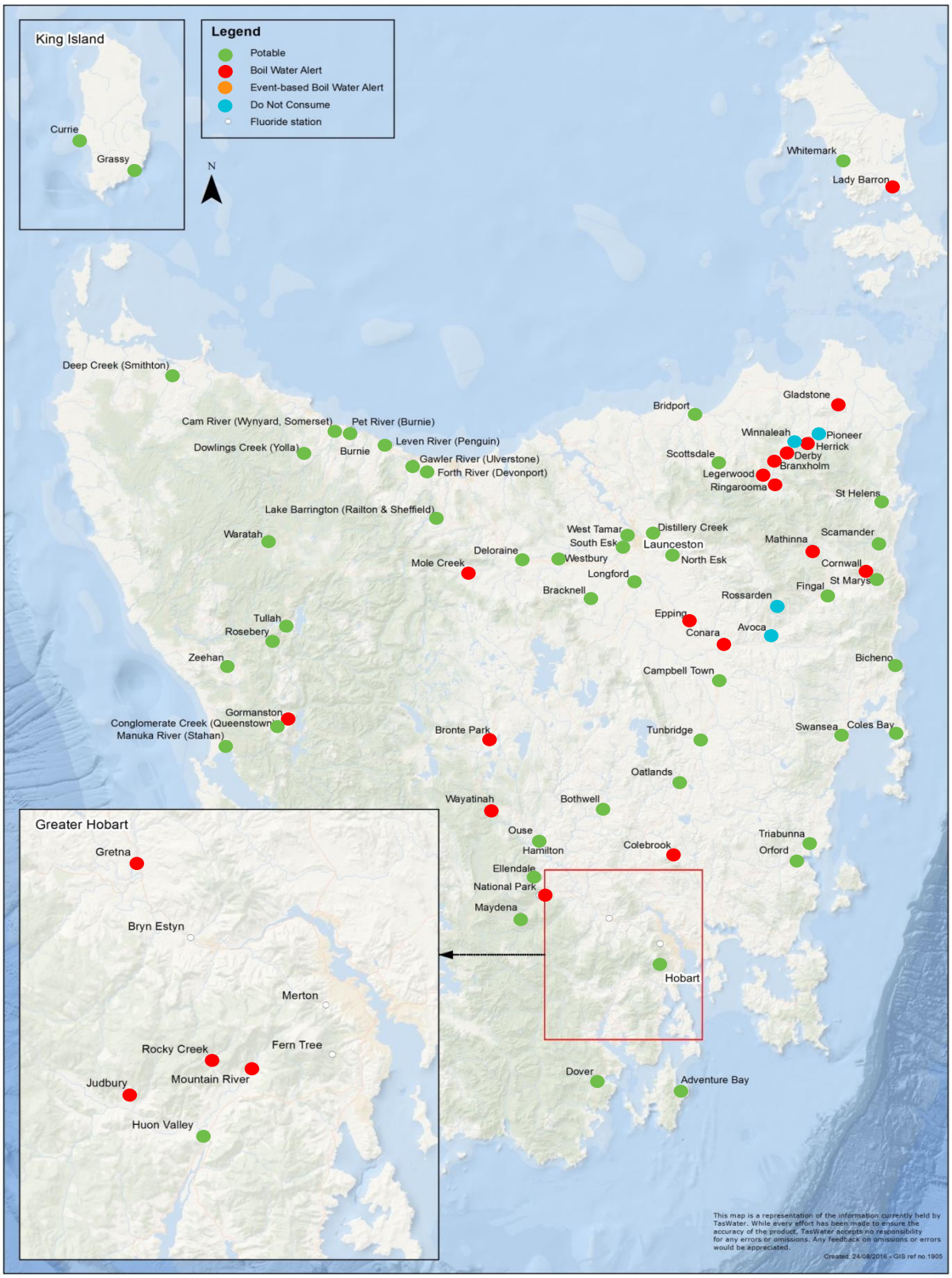
System /Monitoring Zone		Status	Tank water source	Connections	Catchment name/water source	Treatment process	Fluoridated supply
	National Park*		New Norfolk	209	Lake Fenton	Disinfection only	
	New Norfolk			3131	Derwent River	Full treatment	
	Sorell			2971	Risdon Brook	Full treatment	
	Southern Midlands			819	Derwent River	Full treatment	
Gretna		BWA		60	Derwent River	Untreated	No
Herrick		BWA		29	Irrigation scheme	Untreated	No
Huon Valley	Castle Forbes Bay	Potable		366	Huon River	Full treatment	Yes
	Cygnet			1226			
	Cygnet Nicholls			102			
	Franklin			275			
	Geeveston			481			
	Geeveston Donnelly			200			
	Huonville			1599			
	Jacksons Road			24			
Judbury		BWA		101	Dora Creek	Untreated	No
Lady Barron		BWA		160	Bore	Full treatment	Yes
Lake Barrington		Potable		1185	Lake Barrington	Full treatment	Yes
Legerwood		BWA		93	Bore	Untreated	No
Leven River		Potable		2189	Leven River	Full treatment	Yes
Longford		Potable		4511	Macquarie River	Full treatment	Yes
Manuka River		Potable		641	Manuka River	Full treatment	Yes
Mathinna		BWA		153	South Esk River	Untreated	No
Maydena		Potable		157	Unnamed tributary	Disinfection only	No
Mole Creek		BWA		263	Mole Creek	Untreated	No
Mountain River		BWA		2	Stephenson's Creek	Untreated	No
North Esk		Potable		16632	North Esk	Full treatment	Yes
Oatlands		Potable		515	Blackman River	Full treatment	Yes
Orford		Potable		1120	Prosser River	Full treatment	Yes
Ouse and Hamilton		Potable		260	Derwent River	Full treatment	No
Pet River		Potable		8963	Pet River	Full treatment	Yes
Pioneer		PHA (DNC)	Scottsdale	11	Unnamed creek and Ringarooma River	Untreated	No

System /Monitoring Zone	Status	Tank water source	Connections	Catchment name/water source	Treatment process	Fluoridated supply
Queenstown	Potable		1610	Conglomerate Creek	Full treatment	Yes
Ringarooma	BWA	Scottsdale	191	Vineys Creek Dam / Dunns Creek Dam	Untreated	No
Rocky Creek	BWA		488	Rocky Creek	Disinfection only	Yes
Rosebery	Potable		734	Mountain Creek / Stitt River	Full treatment / Disinfection only	Yes
Rossarden	PHA (DNC)	Campbell Town or Longford	127	Aberfoyle Creek	Untreated	No
Scamander	Potable		622	Scamander River	Full treatment	Yes
Scottsdale	Potable		1358	Great Forester River / Brid River	Full treatment	Yes
South Esk	Potable		5678	Lake Trevallyn	Full treatment	Yes
St Helens	Potable		2170	Georges River	Full treatment	Yes
St Marys	Potable		440	Bore	Full treatment	Yes
Swansea	Potable		792	Swan River / Meredith River	Full treatment	Yes
Triabunna	Potable		520	Maclaines Creek / Brady's Creek	Full treatment	Yes
Tullah	Potable		243	Lake Rosebery	Full treatment	No
Tunbridge	Potable		106	Blackman River	Full treatment	No
Waratah	Potable		140	Waratah River	Full treatment	Yes
Wayatinah	BWA		72	Lake Liapootah	Disinfection only	No
West Tamar	Potable		10409	Lake Trevallyn	Full treatment	Yes
Westbury	Potable		1180	Meander River	Full treatment	Yes
Whitemark	Potable		213	Pats River	Full treatment	No
Winnaleah	PHA (DNC)	Scottsdale	106	Bore	Untreated	Yes
Zeehan	Potable		750	Parting Creek	Full treatment	Yes

*National Park subject to BWA and includes the towns of Fentonbury, Westerway and National Park.

The location of the drinking water system in Tasmania and the status is illustrated in Figure 1.

Figure 1 – Location and system status of TasWater drinking water systems as of 30th June 2017.



3.0 Quality of drinking water in 2016-17

3.1 Performance against ADWG limits

The performance of our 71 drinking water systems is assessed against the ADWG health and aesthetic guideline limits and demonstrates the quality of water supplied to our customers. Table 3 summarises the relevant limits and targets.

Table 3: Summary of health, physico-chemical and aesthetic limits

Parameter	Operational target	ADWG health	ADWG aesthetic	Comment
Microbiological				
Escherichia coli (E. coli)	<1 MPN/100mL	<1 MPN/100mL	–	TDWQG guideline for microbial quality <1 MPN/100mL
Metals ADWG health regulated				
Antimony total (mg/L)	–	0.003	–	ADWG Health
Arsenic inorganic (mg/L)	–	0.01	–	ADWG Health
Barium total (mg/L)	–	2	–	ADWG Health
Boron (mg/L)	–	4	–	ADWG Health
Cadmium total (mg/L)	–	0.002	–	ADWG Health
Chromium (mg/L)	–	0.05	–	ADWG Health
Copper total (mg/L)	–	2	1	ADWG Health
Lead total (mg/L)	–	0.01	–	ADWG Health
Manganese total (mg/L)	–	0.5	0.1	ADWG Health
Mercury total (mg/L)	–	0.001	–	ADWG Health
Molybdenum total (mg/L)	–	0.05	–	ADWG Health
Nickel total (mg/L)	–	0.02	–	ADWG Health
Selenium total (mg/L)	–	0.01	–	ADWG Health
Disinfection by-products				
Chloroacetic acid	–	150 µg/L	–	ADWG Health
Dichloroacetic acid	–	100 µg/L	–	ADWG Health
Trichloroacetic acid	–	100 µg/L	–	ADWG Health
Total trihalomethanes	–	250 µg/L	–	ADWG Health
Pesticides				
2,4-D	No detection	30 µg/L	–	ADWG Health
Alpha-cypermethrin	No detection	200 µg/L	–	ADWG Health
Atrazine	No detection	20 µg/L	–	ADWG Health
Chlorpyrifos	No detection	10 µg/L	–	ADWG Health
Clopyralid	No detection	2000 µg/L	–	ADWG Health

Parameter	Operational target	ADWG health	ADWG aesthetic	Comment
Cyanazine	No detection	70 µg/L	–	ADWG Health
Dicamba	No detection	100µg/L	–	ADWG Health
Dimethoate	No detection	7 µg/L	–	ADWG Health
Glyphosate	No detection	1000 µg/L	–	ADWG Health
Hexazinone	No detection	400 µg/L	–	ADWG Health
MCPA	No detection	40 µg/L	–	ADWG Health
Metribuzin	No detection	70 µg/L	–	ADWG Health
Metsulfuron methyl	No detection	40 µg/L	–	ADWG Health
Pendimethalin	No detection	400 µg/L	–	ADWG Health
Permethrin	No detection	200µg/L	–	ADWG Health
Simazine	No detection	20 µg/L	–	ADWG Health
Sulfometuron methyl	No detection	40 µg/L	–	ADWG Health
Turbacil	No detection	200µg/L	–	ADWG Health
Fluoride				
Fluoride (mg/L)	>0.8 – <1.2	<1.5	–	DHHS regulations & ADWG Health
General physico-chemical parameters				
Chlorine residual (mg/L)	> 0.1	< 5	0.6	ADWG Aesthetic
pH	6.5 – 8.5	N/A	NA	–
Turbidity (NTU)	<1	N/A	< 5	–

3.2 Microbiological performance

The largest risks to water quality and the health of the consumer is the presence of pathogenic microorganisms. Therefore it is essential that drinking water systems are monitored to demonstrate that they are free of potentially harmful microorganisms. The most likely source of pathogenic microorganisms is through contamination of the water supply by faecal matter, more specifically the faecal matter of warm blooded animals. As it is not possible to test for all potentially harmful microorganisms the focus is on indicator organisms. It is generally accepted that the best indicator for faecal contamination is *E. coli* as this organism inhabits the intestinal tract of warm blooded animals and generally only survives for a short time outside of the body and it is extremely rare for it to multiply in the environment. As a result there is a strong correlation between the amount of *E. coli* in a sample and the amount of faecal matter present. Hence, the ADWG sets a limit that there should be no *E. coli* present in a 100mL of drinking water sample.

Drinking water compliance for financial year 2016-17 has improved every quarter when compared with 2015-16, with only nine *E. coli* detections recorded in potable water systems, which is well below TasWater's operational target of 30 for the financial year. This is due to the proactive strategies put in place leading into summer which were focused on reducing the likelihood of *E. coli* detections.

The quality of water supplied to our customers has improved due to system improvements such as improved management of network chlorine residuals and the construction of new water treatment plants (WTPs).

TasWater samples over 390 locations across Tasmania and during the reporting period over 17,100 samples were tested.

A drinking water system is deemed compliant against the requirement of the TDWQG if *E. coli* is absent in 98 per cent or more, of all microbiological compliance samples taken.

Where a system demonstrates a high microbiological risk, a BWA may be issued in agreement with DHHS to mitigate risk while we investigate and perform remediation activities. As noted above, there were nine *E. coli* detections in compliance samples across potable systems, of which seven were within fully treated systems and two were in disinfection only systems. Table 4 summarises the systems affected and the actions taken to remove the risk.

Table 4: Summary of *E. coli* detections in potable systems for 2016-17

System	Treatment process	E. coli Detection date	Mitigating actions	Comments
Greater Hobart – Southern Midlands	Full treatment	19/07/2016	Chlorine dosing system checked, residual chlorine levels checked, scouring of the network and a re-sample sent for analysis.	Reported to DHHS Subsequent tests were clear
Greater Hobart – Glenorchy	Disinfection only	12/09/2016	The affected reticulation line was flushed. Chlorine levels were checked. The free residuals were also checked at three other sample sites. The site was then re-sampled.	Reported to DHHS Subsequent tests were clear
Greater Hobart – Clarence	Full treatment	10/10/2016	Site investigation conducted to determine cause of contamination. The surrounding system was flushed; the nearby reservoir was disinfected and re-sampled.	Reported to DHHS Re-installed sample tap to a more appropriate location. Subsequent tests were clear
Greater Hobart – Glenorchy	Full treatment	14/11/2016	Bird ingress into reservoir was identified. Reservoir was cleaned and chlorinated. The reticulation zone was flushed and re-tests were conducted.	Reported to DHHS Reservoir roof was repaired and subsequently replaced in Jan 2017. Subsequent tests were clear
Longford	Full treatment	25/01/2017	Chlorine dosing system checked, residual chlorine levels checked, scouring of the network and a re-sample sent for analysis.	Reported to EHO and DHHS Subsequent tests were clear
Huon Valley	Full treatment	08/02/2017	A review of the system found low chlorine residuals within the Ranelagh Reservoir. Reservoir disinfected manually and re-sample taken.	Reported to DHHS Subsequent tests were clear
Greater Hobart - Kingborough	Disinfection	09/02/2017	A review of operational data was conducted which did not reveal any issues. Re-testing was completed at several locations in the area.	Reported to DHHS Subsequent tests were clear
Manuka River (Strahan)	Full treatment	21/03/2017	Incident was declared, site was closely examined for: chlorine residual; filtered water	Reported to DHHS Subsequent tests were clear

System	Treatment process	E. coli Detection date	Mitigating actions	Comments
			performance; possible weak points; and breakage history. System was flushed and re-sampled.	
Whitemark	Full treatment	10/04/2017	Site was closely examined and resampled. No indication of compromised water quality. Sample point was deemed to be inappropriate and was relocated.	Reported to DHHS Subsequent tests were clear

Table 5 summarises the microbiological performance across all systems (both potable and those under a health alert) and indicates whether they were compliant. This table provides a useful tool in strategic planning by highlighting microbiological risk and establishing a clear picture of where we need to focus our attention.

Table 5: Overall microbiological performance 2016-17

System name	Monitoring zone name	Status	No. sites tested	*E. coli* detections	Outcome	Compliant
Adventure Bay		Potable	1	0	100.0	☑
Avoca		PHA (DNC)	1	0	100.0	☑
Bicheno		Potable	1	0	100.0	☑
Bothwell		Potable	1	0	100.0	☑
Bracknell		Potable	1	0	100.0	☑
Branxholm		BWA	1	10	16.7	☒
Bridport		Potable	2	0	100.0	☑
Bronte Park		BWA	1	10	80.7	☒
Cam River		Potable	7	0	100.0	☑
Campbell Town		Potable	2	0	100.0	☑
Colebrook		BWA	1	0	100.0	☑
Coles Bay		Potable	1	0	100.0	☑
Conara		BWA	1	0	100.0	☑
Cornwall		BWA	1	1	91.7	☒
Currie		Potable	3	0	100.0	☑
Deep Creek		Potable	9	0	100.0	☑
Deloraine		Potable	2	0	100.0	☑
Derby		BWA	1	4	66.7	☒
Distillery Creek		Potable	13	0	100.0	☑

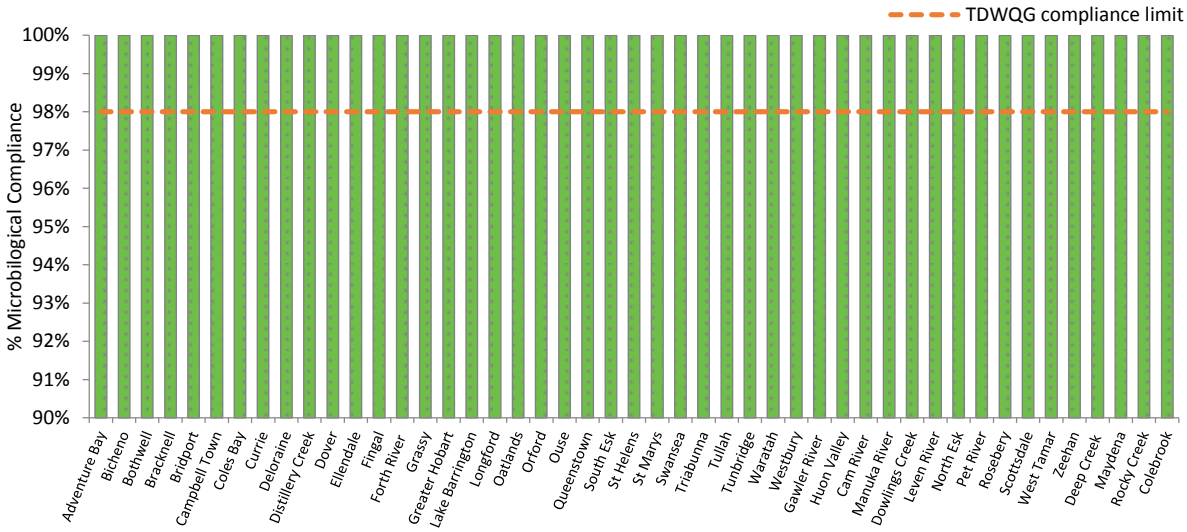
System name	Monitoring zone name	Status	No. sites tested	*E. coli* detections	Outcome	Compliant
Dover		Potable	1	0	100.0	☑
Dowlings Creek		Potable	3	0	100.0	☑
Ellendale		Potable	1	0	100.0	☑
Epping		BWA	1	0	100.0	☑
Fingal		Potable	1	0	100.0	☑
Forth River		Potable	14	0	100.0	☑
Gawler River		Potable	9	0	100.0	☑
Gladstone		BWA	1	10	16.7	☒
Gormanston		BWA	1	6	50.0	☒
Grassy		Potable	3	0	100.0	☑
Greater Hobart	Brighton	Potable	10	0	100.0	☑
	Clarence	Potable	23	1	99.9	☑
	Coal Valley	Potable	3	0	100.0	☑
	Glenorchy	Potable	20	2	99.8	☑
	Hobart	Potable	17	0	100.0	☑
	Kingborough	Potable	15	1	99.9	☑
	National Park	BWA	2	0	100.0	☑
	New Norfolk	Potable	10	0	100.0	☑
	Sorell	Potable	4	0	100.0	☑
	Southern Midlands	Potable	4	1	100.0	☑
Gretna		BWA	1	11	8.3	☒
Herrick		BWA	1	5	58.3	☒
Huon Valley	Castle Forbes Bay	Potable	1	0	100.0	☑
	Cygnet		1	0	100.0	☑
	Cygnet Nicholls		1	0	100.0	☑
	Franklin		1	0	100.0	☑
	Geeveston		1	0	100.0	☑
	Geeveston Donnelly		1	0	100.0	☑
	Huonville		1	1	98.1	☑
	Jacksons Road		1	0	100.0	☑
Judbury		BWA	1	9	25.0	☒
Lady Barron		BWA	1	1	99.3	☑

System name	Monitoring zone name	Status	No. sites tested	*E. coli* detections	Outcome	Compliant
Lake Barrington		Potable	5	0	100.0	☑
Legerwood		BWA	1	0	100.0	☑
Leven River		Potable	6	0	100.0	☑
Longford		Potable	4	1	99.5	☑
Manuka River		Potable	5	1	99.6	☑
Mathinna		BWA	1	10	16.7	☒
Maydena		Potable	1	0	100.0	☑
Mole Creek		BWA	1	6	79.0	☒
Mountain River		BWA	1	7	41.7	☒
North Esk		Potable	1	0	100.0	☑
Oatlands		Potable	1	0	100.0	☑
Orford		Potable	1	0	100.0	☑
Ouse		Potable	2	0	100.0	☑
Pet River		Potable	9	0	100.0	☑
Pioneer		PHA (DNC)	1	10	16.7	☒
Queenstown		Potable	4	0	100.0	☑
Ringarooma		BWA	2	12	50.0	☒
Rocky Creek		BWA	1	0	100.0	☑
Rosebery		Potable	4	0	100.0	☑
Rossarden		PHA (DNC)	1	3	75.00	☒
Scamander		Potable	1	0	100.0	☑
Scottsdale		Potable	2	0	100.0	☑
South Esk		Potable	7	0	100.0	☑
St Helens		Potable	2	0	100.0	☑
St Marys		Potable	1	0	100.0	☑
Swansea		Potable	2	0	100.0	☑
Triabunna		Potable	1	0	100.0	☑
Tullah		Potable	4	0	100.0	☑
Tunbridge		Potable	1	0	100.0	☑
Waratah		Potable	3	0	100.0	☑
Wayatinah		BWA	1	1	98.1	☑
West Tamar		Potable	11	0	100.0	☑

System name	Monitoring zone name	Status	No. sites tested	*E. coli* detections	Outcome	Compliant
Westbury		Potable	1	0	100.0	☑
Whitemark		Potable	4	1	99.1	☑
Winnaleah		DNC	1	4	66.7	☒
Zeehan		Potable	3	0	100.0	☑

All Potable drinking water systems were compliant with the health guideline for microbiological performance. The chart in Figure 2 shows microbiological performance of all Potable systems for the reporting period.

Figure 2– Microbiological performance of all potable systems



3.2.1 Microbiological performance of potable tank water

Towns with DNC public alerts are provided with tanks containing potable water. In addition, two towns on BWA were supplied with tanks during the reporting year. The water for these tanks is collected from a potable water source with full treatment. These tanks are located in publicly accessible areas with storage levels maintained according to demand. The microbiological performance of these alternative potable water supplies for 2016–17 is outlined in Table 6 below. Testing for other ADWG regulated parameters occurs in the system from which the water was sourced; the results are available in the relevant system report in Section 6.0.

Tank water is tested weekly for the following critical parameters: *E. coli*, turbidity, pH and chlorine residuals.

Table 6: Microbiological performance of alternative potable water tanks 2016-17

System	WTP source	No. of Tanks	Outcome	Compliant
Avoca	Longford or Campbell Town	3	100.0	☑
Pioneer	Scottsdale	1	100.0	☑
Ringarooma	Scottsdale	4	100.0	☑
Rossarden	Longford or Campbell Town	1	100.0	☑
Westerway	New Norfolk	1	100.0	☑
Winnaleah	Scottsdale	4	100.0	☑

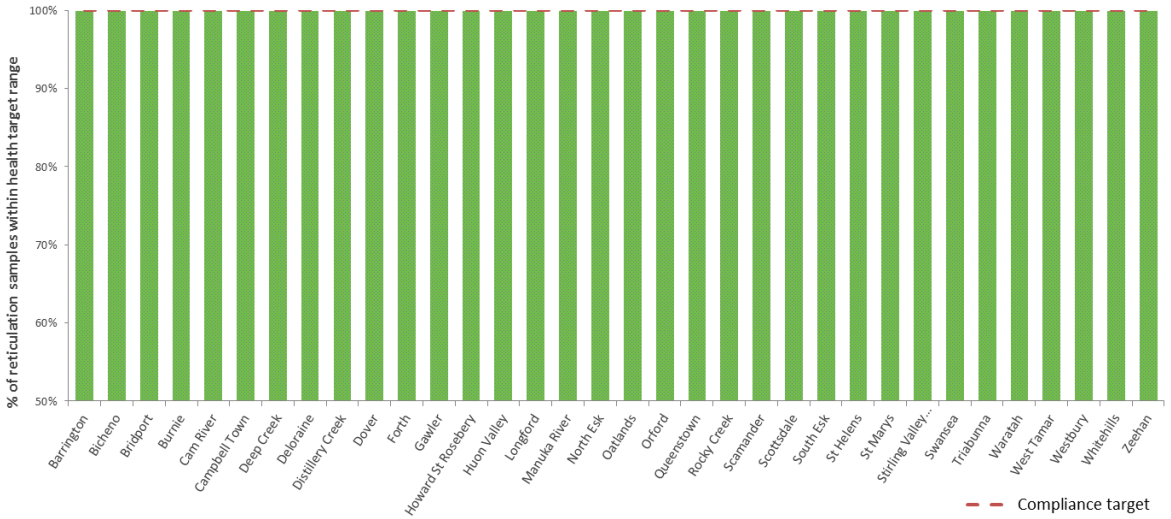
3.2.2 Fluoride performance against ADWG

TasWater adds fluoride to drinking water supplies as directed by DHHS as required by the *Fluoridation Act of Tasmania 1968,* Fluoridation (interim) Regulations 2009 and the Tasmanian Code of Practice for the Fluoridation of Public Water Supplies 2007-2010. During 2016-17, TasWater managed 37 fluoride dosing stations across the state, which provided fluoridated water to 33 drinking water systems across the state.

Samples are collected weekly in line with the requirements of the DRAFT Tasmanian Code of Practice for the Fluoridation of Public Water Supplies 2013-17.

Testing of the 33 fluoridated systems demonstrates that all fluoridated systems were compliant with the ADWG health guideline limit of 1.5 mg/L (see Figure 3).

Figure 3 - Fluoridated drinking water ADWG compliance



It should be noted that 97.3% of fluoride dosing systems operated with a mean annual dose between 0.8 – 1.2 mg/L and is a different metric to the ADWG health limit. Those systems that did not meet mean annual dose requirements are listed below:

-

3.2.3 Metals performance

Monitoring for the presence of metals in our drinking water systems is undertaken in line with the risk based approach promoted by the ADWG. Individual system sampling plans evaluate the risks within each catchment and distribution network together with historical events.

Identification of metals in our water supplies can occasionally occur. Typically this occurs directly from the catchment, or as a result of leaching from materials in the distribution network. The quality of treatment chemicals is also closely monitored as a potential source of trace metal contamination. During the reporting there were 1,244 water samples analysed for the presence of metals. There were four detections of metals greater than the ADWG health limits in the following four systems:

- Conara
- Greater Hobart
- Leven River
- Rosebery

The health performance indicator for metals target is 100%. A summary of non-compliant systems for metals is shown in Table 7, whilst further details on actions taken are detailed in Table 8.

Table 7: Summary of drinking water systems below target for metals health performance

System name	Monitoring zone name	Status	Metal Exceedances	Metal	Outcome	Compliant
Conara		BWA	1	Lead	97.9%	☒
Greater Hobart	New Norfolk	BWA	1	Mercury	99.9%	☒
Leven River		Potable	1	Chromium	99.5%	☒
Rosebery		Potable	1	Lead	99.7%	☒

Table 8: Summary of metal detections and actions taken

System	Metal	Detection date	Mitigating actions	Comments / Planned improvements
Conara	Lead	20/09/2016	Immediate actions included a resample from the same sampling location and DHHS was notified. In consultantion with DHHS a new sample point was verified and another sample was taken on 7th Oct.	Reported to DHHS The sampling location was not representative of the network. Therefore a new representative sample tap was installed. All re-sample results were within ADWG health limits.
Greater Hobart – New Norfolk Zone	Mercury	4/05/2017	Investigation of the catchment, treatment chemicals, network, sampling and laboratory testing revealed no obvious source of the contamination. System was flushed and resampled.	Reported to DHHS Resample results were within the ADWG health limits
Leven River	Chromium	22/02/2017	Flushing of system was performed and resample taken.	Reported to DHHS Resample results were within the ADWG health limits

Rosebery	Lead	16/08/2016	Flushing of system was performed and resample taken	Reported to DHHS Resample results were within the ADWG health limits

At the conclusion of this reporting period, four drinking water systems remain on DNCs due to metals concerns:

1. Avoca – since 8 December 2012
2. Pioneer – since 8 November 2012
3. Rossarden – since 24 December 2014
4. Winnaleah – since 26 November 2014.

Whitemark, which had been on DNC since May 2012, transitioned to a full treatment plant in the reporting period and as of 30 June 2017 is supplying potable water.

3.2.4 Disinfection by-product performance

Disinfection by-products (DBPs) form as a result of the reaction of free chlorine with organic material present in the water. The rate of this reaction and the quantity and type of chemicals formed are influenced by the chemistry and physical properties of the raw water. The influencing factors such as free chlorine level, pH, turbidity, colour and dissolved organic carbon are considered during performance reviews.

It is important to note that the ADWG advises that chlorination should not be compromised to minimise DBP formation, as the risk to public health from microbiological contamination is more acute. DBPs are tested in all chlorinated systems. During the reporting period over 700 samples were analysed for DBPs. Of these, 27 detections greater than ADWG health limits were identified across 7 systems which are listed in Table 9. The health performance indicator target for DBPs is 100%, further details on systems non-compliant for DBPs are described in Table 10.

Table 9: Summary of non-compliant systems for DBPs

System name	Status	DBP Exceedances	Outcome	Compliant
Avoca	PHA (DNC)	4	75.0%	☒
Bronte Park	BWA	5	91.7%	☒
Coles Bay	Potable	4	90.0%	☒
Conara	BWA	4	75.0%	☒
Ellendale	Potable	2	95.8%	☒
Epping Forest	BWA	4	75.0%	☒
Wayatinah	BWA	2	95.8%	☒

Table 10: Overview of DBP failures and relevant improvement projects

System name	Status	Sampling events	No. Failures	System Information	Improvement project
Avoca	PHA (DNC)	4	4	Disinfection only system with no treatment barriers to mitigate raw water turbidity and organic content fluctuations which promote DBP formation. Will be resolved with a pipeline from Fingal WTP.	Avoca was connected to the Fingal system via a pipeline in April 2017
Bronte Park	BWA	18	6	Disinfection only system with no treatment barriers to mitigate raw water turbidity and organic content fluctuations which promote DBP formation.	Bronte park water supply system to be delivered FY17/18
Coles Bay	Potable	10	4	Operational investigations underway and changes to pre-chlorination have been made to minimise DBP formation.	Review underway by water optimisation team
Conara	BWA	4	4	Disinfection only system with no treatment barriers to mitigate raw water turbidity and organic content fluctuations which promote DBP formation.	Conara water supply system to be delivered FY17/18
Ellendale	Potable	12	2	Ellendale system does not have the ability to remove dissolved organic matter from the raw water and is therefore susceptible to DBP formation.	Further work is occurring in optimising the system so that water is not extracted when the organic load is high.
Epping Forest	BWA	4	4	Disinfection only system with no treatment barriers to mitigate raw water turbidity and organic content fluctuations which promote DBP formation.	Epping water supply system to be delivered FY17/18
Wayatinah	BWA	12	3	Disinfection only system with no treatment barriers to mitigate raw water turbidity and organic content fluctuations which promote DBP formation.	Wayatinah water supply system to be delivered FY17/18

3.3 Overall performance analysis

3.3.1 Customer complaints

Throughout the 2016-17 reporting period we received a total of 1,366 customer complaints relating to drinking water quality. This figure relates to all complaints which are received via our call centre or in written form including Ombudsman enquiries.

In this period 842 complaints were received regarding discolouration, 431 regarding taste/odour issues, 82 related to BWA/PHA(DNC), and 11 that were unable to be classified into the previous categories, the majority of these complaints relate to health alerts.

All complaints are investigated and under the provisions of the TasWater customer charter we are required to get back to the customer within 10 working days of receiving a complaint. Further details on complaints received are listed in the relevant individual system performance reports (Section 6.0).

3.3.2 Boil water alerts

Where a system demonstrates a high microbiological risk, a boil water alert (BWA) is issued in agreement with DHHS to mitigate this risk while we investigate and perform remediation activities. In 2016–17 a total of 10 BWAs were implemented. Table 11 outlines the systems affected and the actions taken to remove the risk.

The majority of BWAs were related to high turbidity in raw water catchments following heavy rainfall and the associated inability of the WTPs to reduce the turbidity.

BWAs are issued when *E. coli* is detected and when drinking water turbidity exceeds the threshold level beyond which we can be confident that disinfection is effective.

Table 11: Public health non-compliance rated serious including boil water alerts

System	Monitoring zone	Towns	Date Issued	Date removed	Comments
Greater Hobart	National Park[3]	Fentonbury, Westerway, National Park	15/07/2016	1/08/2016	Due to high turbidity in Lake Fenton a temporary BWA was issued for the towns of Fentonbury, Westerway and National Park.
Greater Hobart	National Park	Fentonbury, Westerway, National Park	30/09/2016	ongoing	Due to ongoing high turbidity in Lake Fenton a permanent BWA was issued for the towns of Fentonbury, Westerway and National Park.
Bronte Park		Bronte Park	29/07/2016	ongoing	Bronte Park's water and sewerage assets were transferred to TasWater in July. After carrying out water sampling of the supply, the results indicated that the treatment process posed a potential risk to public health.
Rocky Creek		Rocky Creek	15/09/2016	22/09/2016	Due to high turbidity a permanent BWA was issued for Rocky Creek.

[3] Fentonbury, Westerway and National Park were logged as separate incidents, however only 1 BWA was applied to the zone National Park consisting of the 3 towns.

System	Monitoring zone	Towns	Date Issued	Date removed	Comments
Rocky Creek		Rocky Creek	30/09/2016	ongoing	Due to ongoing high turbidity a BWA was issued for Rocky Creek.
Maydena		Maydena	1/10/2016	13/10/2016	Due to high turbidity, a BWA was issued for the Maydena catchment.

3.3.3 Catchment and water source issues

In line with the preventive risk management approach of the ADWG, we undertake a broad pesticide sampling program in all of our source water catchments to understand and manage the risk from agricultural chemical usage. For the purpose of this annual report the complex family of agrichemicals, including pesticides, herbicides, insecticides and fungicides, will be referred to as pesticides.

There are multiple pathways in which pesticides can infiltrate our source waters; these include direct run-off, erosion of contaminated soils and application overspray. Domestic usage may also be a contributor in some catchments.

Historic testing shows pesticide levels are typically well below the ADWG health limits. Testing is undertaken in all raw water supplies.

The Department of Primary Industries, Parks, Water and Environment (DPIPWE) conducted the Agricultural, Silvicultural and Veterinary Chemicals Council's (ASCHEM) Pesticide Water Monitoring Program from 2005 to 2014. It was implemented as a means to increase knowledge and understanding as to the nature and extent of pesticide contamination of rivers and streams in Tasmania. Results from this program have demonstrated that our waterways are generally either free of pesticides or may occasionally have chemical traces at levels significantly below the ADWG health guideline values. Consequently, DPIPWE have ceased the program, and will now take a risk and evidence based approach to monitoring agricultural chemical use issues that may impact on waterways.

Discussions with DPIPWE are now progressing towards a collaborative partnership to improve awareness and education amongst agricultural chemical users and to investigate and identify potential sources of contamination. In consultation with DPIPWE, and using the knowledge gained through the ASCHEM program, we will maintain the focus of pesticide monitoring programs in catchments with a greater underlying risk of pesticide contamination.

In the 2016 - 17 reporting period pesticides were not detected at levels above the ADWG health limits. Trace pesticide detections were identified in a number of raw water supplies around the state.

Catchment surveys are conducted to inform long term upgrades.

3.3.4 Aesthetic quality

The aesthetic quality of drinking water is generally not a direct health concern. It does however have the potential to significantly affect community perceptions of water quality and acceptability. Common aesthetic considerations include colour, taste and odour.

Discolouration is commonly caused by iron sediments typically mobilised by a change in water flow or direction. Issues are normally short lived and sporadic in nature, regularly caused by maintenance work or a mains burst. These issues are not considered harmful to health, but we do appreciate that a supply which is discoloured in this manner can be aesthetically unacceptable.

We receive a number of discolouration complaints from our unfiltered systems.

Taste and odour can vary significantly in cause and nature, impacting consumers differently depending on individual sensitivities. A significant proportion of consumer concerns can be attributed to private plumbing materials, storage and handling practices with customer properties. Customers are encouraged to contact TasWater so we can assist with identification of the cause. Taste and odour problems will occasionally originate from either the source water or distribution network. Of the numerous descriptions, “earthy”, “musty” or “chlorine” were the most commonly encountered in 2016-17.

Earthy/musty issues impacting entire systems are typically caused by algae or bacteria metabolites in the source water. At certain periods in their seasonal lifecycle they can release small amounts of the chemicals 2-Methylisoborneol (MIB) and Geosmin. These compounds, at levels as low as five parts per billion, may be noticeable. These levels are not harmful to human health but can taste unpleasant and are commonly observed during the warmer months.

Over the previous two years the issue has become more prevalent and prompted the development of our algal management sampling plan. This plan established an early warning methodology and targeted high risk systems for the installation of additional treatment barriers (activated carbon). While carbon dosing was successful in mitigating the aesthetic impacts some complaints were received typically as dose rates were optimised.

TasWater’s algal management plan continues to use past data to inform future strategic decisions making and help minimise aesthetic impacts for our consumers.

3.3.5 Chlorine residual performance

Free chlorine residuals have an important role to play in maintaining the microbial quality of water when in transit from the WTP to the customer tap. Residuals safeguard against recontamination following unexpected service interruptions, breaks in supply or ingress throughout storage reservoirs and throughout the network.

Chlorine residual levels should ideally reach the customer at a range between 0.3 mg/L to 0.6 mg/L. The ADWG (2011) recommends a chlorine residual at end points in the reticulation at 0.2 mg/L. This range ensures adequate microbial protection against chlorine-sensitive pathogens while minimising aesthetic impacts. TasWater has set a minimum target of 0.1 mg/L to inform strategic decisions.

In this reporting period, a significant variability in chlorine performance was observed across our drinking water zones as shown in Figure 4. The systems exhibiting the lowest mean residuals typically have no filtration barrier. This results in elevated turbidity and/or dissolved organic carbon (DOC) levels which subsequently consume chlorine and thus diminish chlorine residuals.

Figure 4 – Mean chlorine residual performance of drinking water systems against relevant limits

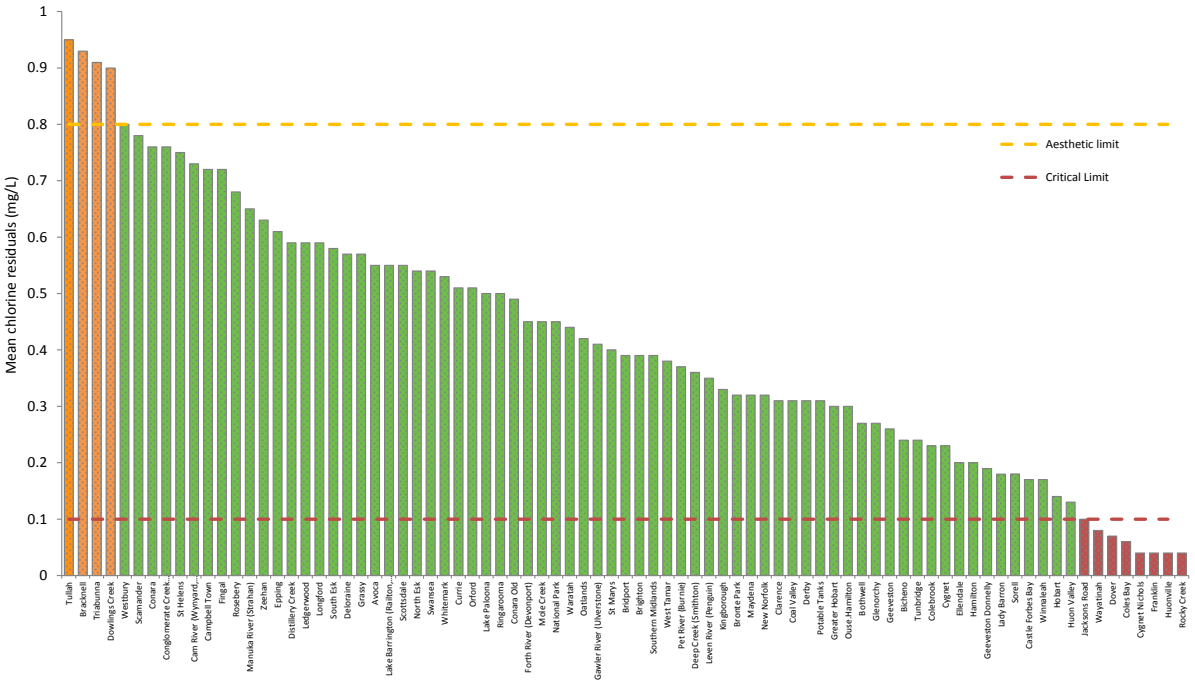


Table 12 lists the five drinking water systems (zones specified where relevant) demonstrating less than the minimum chlorine residual target of 0.1 mg/L. This table will be used as a guide for identifying improvement projects and programs through the implementation of the *Drinking Water Quality Risk Management Plan* (DWQRMP).

Table 12 – Overview of drinking water systems demonstrating poor chlorine residual performance

System	Zone	Mean residual (mg/L)	Comment
Wayatinah		0.08	• Source water high in colour • No filtration barriers
Dover		0.07	• Insufficient treatment processes to reduce chlorine demand • Long reticulation relative to population demand leading to low turnover, water aging and subsequently low chlorine residuals • No booster chlorination facility available
Coles Bay		0.06	• Insufficient treatment processes to reduce chlorine demand • Long reticulation relative to population demand leading to low turnover, water aging and subsequently low chlorine residuals • No booster chlorination facility available • Pre-chlorination options found to result in unacceptably high DBP formation
Huon Valley	Cygnet Nichols Rivulet	0.04	• Source water supplied from Huon River which is high in colour and DOC • The optimisation team is progressing work to improve network chlorine in this system
	Franklin	0.04	
	Jacksons Road	0.1	
	Huonville	0.04	

System	Zone	Mean residual (mg/L)	Comment
Rocky Creek		0.04	• Insufficient treatment processes to remove high loading of colour and DOCs; chlorination only facility • Long reticulation relative to population demand leading to low turnover, water aging and subsequently low chlorine residuals

3.3.6 Turbidity performance

Turbidity is monitored routinely across TasWater networks. Turbidity is an important indicator for filtration performance and the presence of microbes, chlorine efficacy and aesthetic quality.

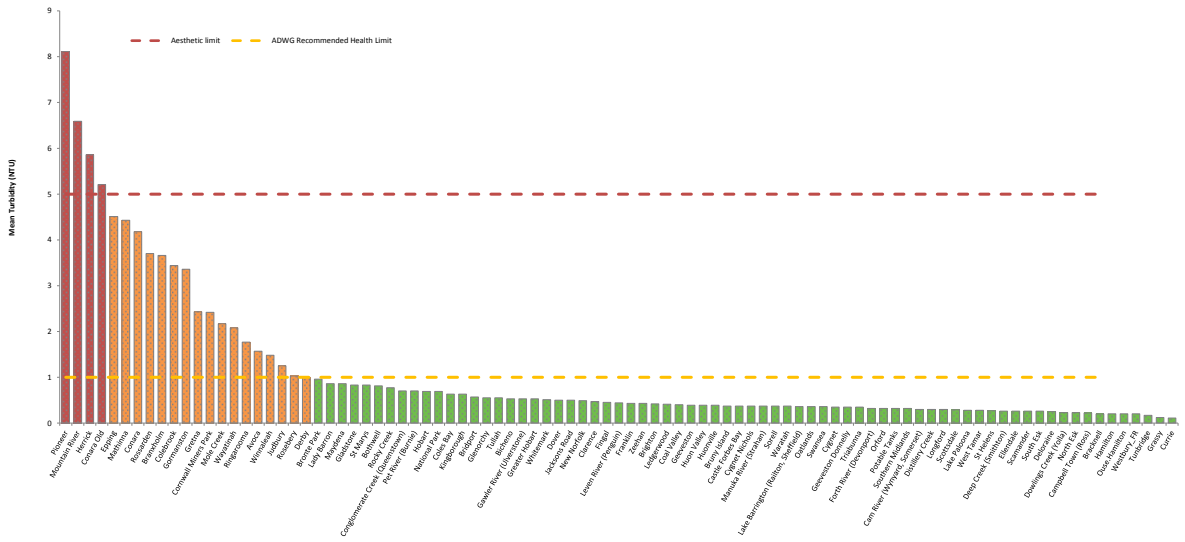
According to the ADWG (2011), a health guideline target for turbidity of less than 1 NTU is desirable at the time of disinfection. Higher turbidity has been shown to shield microorganisms against the action of disinfectants and above 1 NTU, chlorine residuals are more difficult to maintain.

According to the ADWG (2011), the aesthetic target for turbidity should not exceed 5 NTU at the consumer's tap. Many consumers relate the appearance of water to its safety, and turbid or coloured water is interpreted as being unsafe to drink.

Corrosion of distribution assets is often attributed to accumulation of sediment (turbidity) within the mains. During disturbances or changes in flowrates, turbidity and colour are often noted at the customer's tap.

Figure 5 shows the state-wide turbidity performance against our internal operations target range of less than 1 NTU. This analysis is a useful tool for strategic planning and process optimisation. In this reporting period, the average turbidity of 20 systems were found to exceed 1 NTU. Of these 20 systems,3 systems exceeded the ADWG (2011) aesthetic guideline limit of 5 NTU. As expected, these systems were either untreated or disinfection only and subject to health alerts.

Figure 5 – Shows drinking water system turbidity performance against relevant targets



17 systems fall in the category of greater than 1 NTU on average (operational target), but less than 5 NTU (aesthetic target). Table 13 summarises the systems that were within this range and possible causes of elevated turbidity.

Table 13 – Systems experiencing high turbidity over the reporting period

System	Status	Average turbidity (NTU)	Source Water	Treatment	Comment
Epping Forest	BWA	4.51	South Esk River	Chlorination only	• No filtration barriers in place to remove turbidity from raw water. • Regional Small Towns project FY17/18
Mathinna	BWA	4.43	South Esk River	No treatment	• No treatment barriers in place to remove turbidity from raw water. • Regional Small Towns project FY17/18
Conara	BWA	4.18	South Esk River	Chlorination only	• No filtration barriers in place to remove turbidity from raw water. • Regional Small Towns project FY17/18
Rossarden	PHA (DNC)	3.7	Aberfoyle Creek	No treatment	• No treatment barriers in place to remove turbidity from raw water. • Regional Small Towns project FY17/18
Branxholm	BWA	3.66	Ringarooma River	Part-year no treatment; Currently supplied from Ringarooma membrane filtration plant	• Untreated raw water previously supplied to Branxholm. • Branxholm is now supplied from Ringarooma membrane filtration plant which began supply to the reticulation after Jun 2017. • A series of flushing and scouring programs were implemented which further reduced turbidity.
Colebrook	BWA	3.44	Strainers Creek	Chlorination only	• No filtration barriers in place to remove turbidity from raw water. • Colebrook now issued on a BWA Advisory. • Regional Small Towns project FY17/18
Gormanston	BWA	3.36	Unnamed basin	No treatment	• No treatment barriers in place to remove turbidity from raw water.
Gretna	BWA	2.43	Derwent River	No treatment	• No treatment barriers in place to remove turbidity from raw water. • Gretna Water Supply project December 2017
Cornwall Miners Park	BWA	2.42	Fanshaft Spring	No treatment	• No treatment barriers in place to remove turbidity from raw water. • Regional Small Towns project

System	Status	Average turbidity (NTU)	Source Water	Treatment	Comment
					FY17/18
Mole Creek	BWA	2.17	Ringarooma River	Part-year no treatment; Currently supplied from Mole Creek membrane filtration plant	• Untreated raw water previously supplied to Mole Creek. • Mole Creek is now supplied from Mole Creek membrane filtration plant which began supply to the reticulation around Oct 2016.
Wayatinah	BWA	2.08	Lake Liapootah	Chlorination only	• No filtration barriers in place to remove turbidity from raw water. • Regional Small Towns project FY17/18
Ringarooma	BWA	1.77	Ringarooma River	Part-year no treatment; membrane filtration plant	• Untreated raw water previously supplied to Ringarooma. • Ringarooma is now supplied from Ringarooma membrane filtration plant which began supply to the reticulation in June 2017. • A series of flushing and scouring programs were implemented which further reduced turbidity at sample sites.
Avoca	PHA (DNC)	1.57	South Esk River	Chlorination only; Currently supplied from Fingal membrane plant	• Untreated raw water previously supplied to Avoca. • Avoca is now supplied from Fingal membrane filtration plant began supplying to the reticulation April 2017.
Winnaleah	PHA (DNC)	1.48	Bore	No treatment; Currently supplied from Ringarooma membrane filtration plant	• Untreated raw water previously supplied to Winnaleah. • Winnaleah is now supplied from Ringarooma membrane filtration plant which began supply to the reticulation after June 2017. • A series of flushing and scouring programs were implemented which further reduced turbidity at sample sites.
Judbury	BWA	1.25	Dora Creek	No treatment	• No treatment barriers in place to remove turbidity from raw water. • Regional Small Towns project FY17/18
Rosebery	Potable	1.03	Mountain Creek/ Stitt River	Chlorination only	• No treatment barriers in place to remove turbidity from raw water. • Rosebery Water Supply

System	Status	Average turbidity (NTU)	Source Water	Treatment	Comment
					Program FY17/18
Derby	BWA	1	Ringarooma River	Part-year no treatment; Currently supplied from Ringarooma membrane filtration plant	• Untreated raw water previously supplied to Derby. • Derby is now supplied from Ringarooma membrane filtration plant which began supply to the reticulation after June 2017. • A series of flushing and scouring programs were implemented which further reduced turbidity at sample sites.

Table 14 displays the 4 drinking water systems exhibiting average turbidity more than 5 NTU in the reporting period and identified causes. All Potable systems experienced turbidity within the aesthetic guideline limit.

Table 14- List of systems showing high average turbidity

System	Status	Average turbidity (NTU)	Source Water	Treatment	Comment
Pioneer	PHA (DNC)	8.11	Ringarooma River	No treatment	No treatment barriers in place to remove turbidity from raw water. DNC removed September 2017 via service replacement
Mountain River	BWA	6.59	Stephenson's Creek	No treatment	No treatment barriers in place to remove turbidity from raw water. BWA removed September 2017 via service replacement
Herrick	BWA	5.86	Irrigation Scheme	No treatment	No treatment barriers in place to remove turbidity from raw water. Regional Small Towns project FY17/18

4.0 Improving your water quality

In August 2016, we made a commitment to accelerate our program addressing the water quality issues faced by 24 regional towns to systematically remove public health warnings as quickly as possible.

Further information is available at: www.24glasses.com.au

4.1 Completion of major works FY2016-17

The DWQMP regulated by the DHHS prioritises a significant portion of capital expenditure to reducing the number of towns on public health warnings.

During FY2016-17 we progressed several major projects including:

- **Ringarooma Water Supply Scheme – $14.5 million (DHHS priority project)**
  The construction of the pipelines for this scheme was completed and the WTP and storage reservoirs and under construction. The scheme will provide treated water to the towns of Branxholm, Derby, Legerwood, Winnaleah and Ringarooma, which were all under public health warnings
- **Flinders Island water supply - $10.9 million**
  We completed the construction of a new water treatment plant (WTP) and associated infrastructure to address water quality issues for the towns of Whitemark and Lady Barron on Flinders Island. The new WTP supplied Whitemark with potable water in December 2016
- **Avoca fully treated water supply - $4.8 million**

  Construction of Fingal WTP connected to the existing Avoca reservoirs to supply the townships of Avoca and Fingal
- **Mole Creek fully treated water supply - $4.1 million**

  Construction of Mole Creek WTP was completed to supply the township of Mole Creek.

4.2 Major works in progress during FY2016–17

- **Regional Towns Water Supply - $40.7 million**
  Upgrade of water supply systems to facilitate the removal of all public health warnings
- **Tolosa Dam replacement infrastructure - $18.5 million**
  The project is in construction and due to be completed in December 2017
- **Flinders Island Water Supply - $10.9 million**
  Boil Water Alert for Lady Barron is due to be removed in July 2017
- **Margate Water Main Upgrade Supply Scheme - $8.25 million**
  The construction of the pipelines for stage one has been completed and the construction of the pipelines for stage two is scheduled for completion in FY2017-18
- **Rosebery Water Supply - $4.6 million**
  The construction of Rosebery water treatment plant is under construction due to be completed in FY2017-18.

4.3 Future works continuing and commencing FY2017-18

Through the implementation of the DWQMP, TasWater conducts risk assessments on the 71 drinking water systems. Using a risk based approach and guidelines provided by DHHS on priority systems, we develop strategic goals to improve drinking water quality. Major works due to commence include:

- **King Island Treated Water Supply – $15.8 million**
  Works include construction of WTP at Grassy and pipeline to Currie and construction of a new storage reservoir at Currie
- **Gretna/Bushy Park/Glenora Water Supply Upgrade - $5.3 million**
  Upgrade to provide drinking water to Gretna, Glenora, Bushy Park and Macquarie Plains that meets ADWG guidelines and TasWater internal standards
- **Girdlestone Reservoir Rectification- $3.1 million**
  Rectification work to replace current reservoir with a 3ML concrete reservoir
- **Burnie Cam Pipeline Construction - $2.8 million**
  To construct a pipeline to deliver drinking water to Somerset and Wynyard from the existing spare capacity of the Burnie WTP.

Program water system optimisation

This program will review water treatment systems to improve system performance and compliance with a budget allocation for 2017-18 of $4.5 million.

Other initiatives include:

- WTP optimisation including critical control point identification and implementation
- Improve disinfection residual performance
- Reduce the occurrence of DBPs
- Improve fluoride performance.

5.0 Reporting methodology

This section is intended to assist the reader with interpreting the information presented in section 6.0. The following provides definitions along with the reporting methodology used to determine performance outcomes for each of the 71 drinking water systems.

5.1 Understanding this report

For the purpose of this report, all data are assessed in relation to the health and aesthetic guidelines specified in the ADWG. Information on the ADWG is available on the NHMRC website: https://www.nhmrc.gov.au/guidelines-publications/eh52

The information contained throughout this report is current as at 30 June 2017.

5.2 Performance indicators against health targets

Health performance indicators refer to compliance with the relevant ADWG health guideline targets and the extent at which the sampling program complied with the sampling frequency requirements specified in the ADWG.

TasWater undertake an extensive compliance sampling and testing program across 71 drinking water systems. The sampling requirements for each drinking water system are provided in further detail in Section 6.0.

5.2.2 Compliance sampling program

TasWater implements a comprehensive sampling program to evaluate the health performance of our drinking water systems. All potable drinking water systems were tested in accordance with the sampling frequency outlined as best practice in Table 9.4 of the ADWG. Note: this sampling frequency is not applied to systems on a BWA or DNC. Through an agreement with DHHS we are only required to test systems covered by a BWA or DNC on a monthly basis.

Performance against health targets is assessed using results from a compliance sampling program. We perform additional sampling as required which is performed when a re-sample is required or we undertake investigation sampling.

The 71 drinking water systems are assessed against health guideline parameter targets outlined in Table 18.

Table 15 – Summary of health guideline targets

Health performance indicator	Parameter	Guideline Target
Microbiological	*E. coli*	<1 MPN/100mL
Fluoride	Fluoride	<1.5 mg/L
Metals	Antimony	0.003 mg/L
	Arsenic	0.01 mg/L
	Barium	2 mg/L
	Cadmium	0.002 mg/L
	Chromium	0.05 mg/L
	Copper	2 mg/L
	Lead	0.01 mg/L
	Manganese	0.5 mg/L
	Mercury	0.001 mg/L
	Molybdenum	0.05 mg/L
	Nickel	0.02 mg/L
	Selenium	0.01 mg/L
Disinfection by products	Dichloroacetic acid	100 ug/L
	Monochloroacetic acid	150 ug/L
	Trichloroacetic acid	100 ug/L
	Total trihalomethanes	250 ug/L

5.2.3 Microbiological

Compliance is assessed to the extent the drinking water complied with a 98 per cent compliance rate with the ADWG guideline value (*E. coli* of <1 MPN/100mL) measured over 12 months.

A drinking water system is deemed compliant against the requirement of the TDWQG if *E. coli* is absent in greater than 98 per cent of all microbiological compliance samples. This requirement excludes retest and investigation samples from the overall result as per ADWG convention for compliance assessment.

5.2.4 Fluoride

Compliance is assessed against ADWG health limit of 1.5 mg/L. Samples were collected weekly in compliance with the requirements of the DRAFT Tasmanian Code of Practice for the Fluoridation of Public Water Supplies 2013 -2017. Fluoride exceedances are based on ADWG health limit of 1.5 mg/L.

5.2.5 Metals

Total compliance of ADWG health regulated metals. Individual programs may differ between systems dependent on risk. For historic trends, performance figures, where available, are entered from previous annual reports. It is noted that previous programs may differ from those defined in this year's report. To achieve compliance, 100% of the samples tested must comply with the ADWG health targets.

5.2.6 Disinfection By-Products (DBPs)

Total compliance of ADWG health regulated halogenated by-products. Individual programs may differ between systems dependent on risk. For historic trends, performance figures, where available, are entered from previous annual reports. It is noted that previous programs may differ from those defined in this year's report. To achieve compliance, 100% of the samples tested must comply with the ADWG health target.

5.3 Overall system performance (2016-17)

5.3.1 Customer complaints

Customer complaints occur where an expression of dissatisfaction or concern was raised with regard to the quality of supplied drinking water. These figures comprise written, telephone, email or website correspondence. Customer complaint occurrences are listed in the overall system performance of each drinking water system.

5.3.2 Public health warnings

If a drinking water supply becomes non-compliant with ADWG values a health warning can be issued by DHHS. Public health warnings include:

- Boil Water Alerts - issued when water supplied is non-compliant with microbiological guideline values
- Public Health Alerts (do not consume) - issued when water supplied is non-compliant with non-microbiological health guideline values.

If a public health warning has occurred during the reporting period it is listed in the overall system performance of each drinking water system. Public health warnings prior to FY2016-17 are not listed as an occurrence, however are referenced in the relevant drinking water system.

5.3.3 System incidents & issues

TasWater maintains a record of incidents and issues reported throughout the year and how they were addressed stored in an incident reporting information system (IRIS).

System incidents and issues reported for FY2016-17 relate to laboratory test exceedances above the health limits in the ADWG and any issues relating to fluoridation.

When a test fails against its associated health limit in the ADWG it's noted in this section including:

- *E. coli* exceedances
- Fluoride exceedances
- Metals exceedances
- DBPs exceedances.

If a fluoride system experiences any issues throughout the reporting period it's noted as an occurrence in this section.

5.3.4 Catchment and water source issues

A catchment or water source issue relates to issues that occur within a drinking water catchment or groundwater source used for drinking water and includes issues relating to pesticides. Pesticides and are measured against the ADWG health guideline values.

5.3.5 Distribution fluoride testing

Fluoride testing is performed in the drinking water reticulation systems in accordance with the DRAFT Fluoride Code of Practice 2013-2017 including:

- Meet a target over a reporting year, that greater than 90% of all planned compliance fluoride samples fall within the fluoride concentration operating range of 0.8 mg/L to 1.2 mg/L unless otherwise specified by DHHS
- Meet a target over a reporting year, that the average of all planned compliance fluoride samples fall within the fluoride concentration operating range of 0.8 mg/L to 1.2 mg/L unless otherwise specified by DHHS.

5.3.6 General physical performance

In addition to measuring compliance against ADWG health parameters we monitor physico-chemical parameters against the relevant operational and aesthetic targets for chlorine residual, pH, turbidity and true colour. These parameters are tested to provide indications of the overall performance of a system and are useful process control indicators.

6.01. Adventure Bay drinking water system

6.01.1. System summary (2016-17)

Adventure Bay drinking water system	
System status (as at 30 June 2017)	Potable
Total number of connections	1
Fluoride	n/a

Performance overview against health targets (2016-17)

Indicator	Outcome	Compliant	Target	Sampling Events	Non-conformances
Microbiological	100.0%	☑	98.0%	52	0
Fluoride	n/a	n/a	n/a	n/a	n/a
Metals	100.0%	☑	100.0%	4	0
DBPs	n/a	n/a	n/a	n/a	n/a

on or below target within 10% of target greater than 10% outside target

Refer to 5.2 Performance indicators against health targets

Overall system performance (2016-17)

Indicator	Occurrences	Details
Customer complaints	0	
Public health warnings issued	0	
System incidents & issues	0	
Catchment and water source issues	0	

Current and future planned infrastructure and operational changes

Project	Description	Progress	Est. Delivery	Est. Spend
n/a	n/a	n/a	n/a	n/a

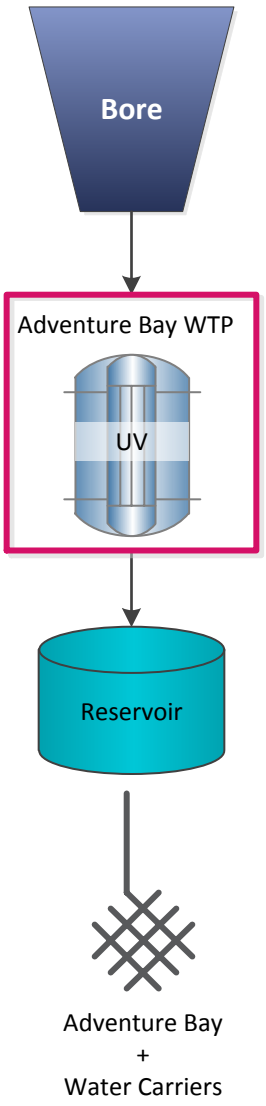


Figure 6.01.1-a Adventure Bay system schematic

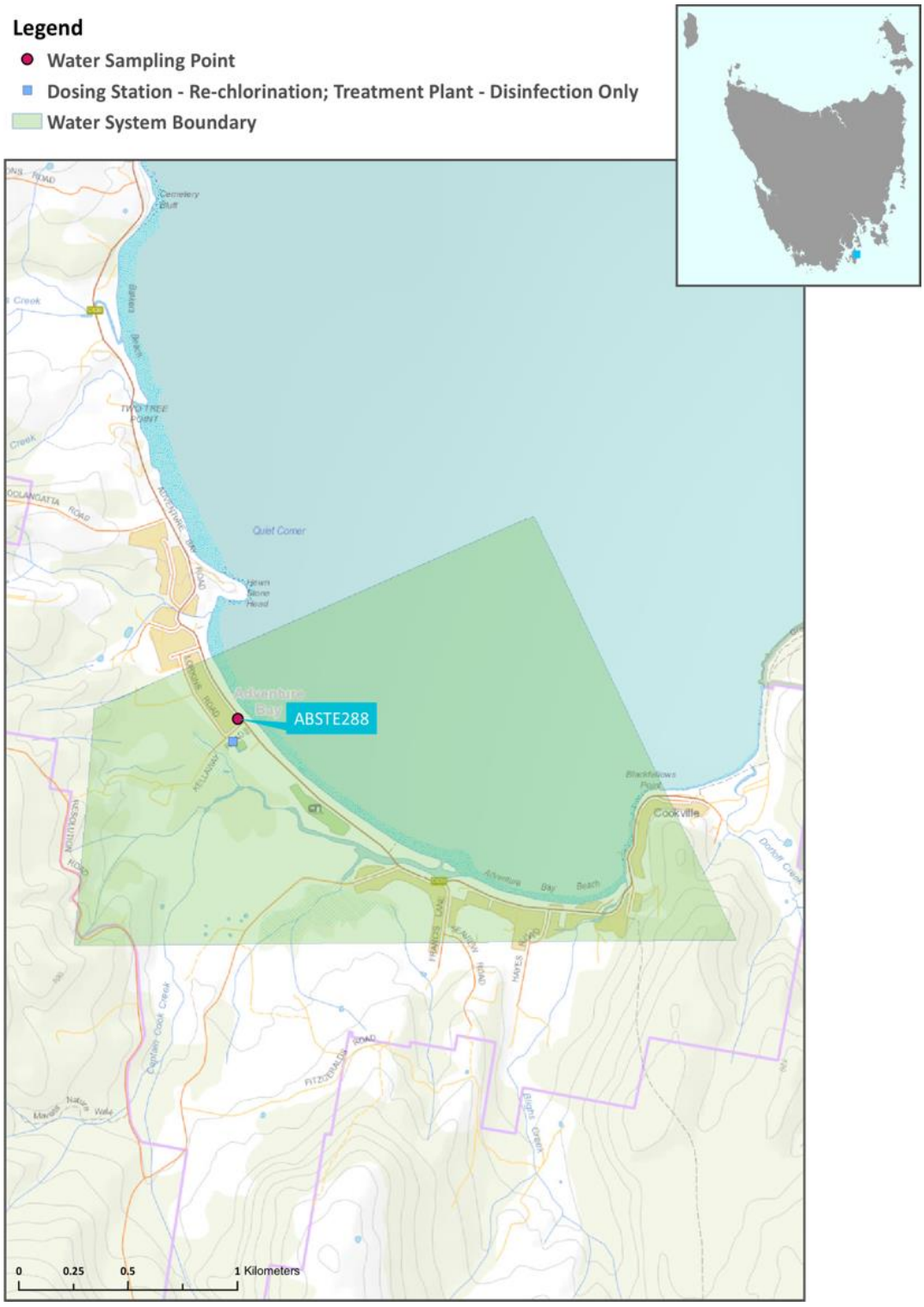


Figure 6.01.1-b Map of Adventure Bay monitoring system

6.01.2. Summary of Annual Reticulation Compliance (2016–17)

Table 6.01.2-a Compliance sampling program

Planned compliance sampling program (2016-17)								
Site name	Site Code	Micros	Metals	DBP	Fluoride (Field)	Fluoride (Lab)	Chemical Profile	Process Chemicals
Shop Sample Tap	ABSTE288	W	Q	n/a	n/a	n/a	Q	n/a
Number Planned Samples		**52**	**4**	**0**	**0**	**0**	**4**	**0**
Number Samples Tested		**52**	**4**	**0**	**0**	**0**	**4**	**0**

6.01.3. Summary of current and historic performance (2012-17)

Table 6.01.3-a Historical health performance overview (5 year comparison)

Historical health performance overview (5 year comparison)					
Indicator	**2012-13**	**2013-14**	**2014-15**	**2015-16**	**2016-17**
Microbiological	100.0%	99.5%	100.0%	100.0%	100.0%
Fluoride	n/a	n/a	n/a	n/a	n/a
Metals	100.0%	100.0%	100.0%	100.0%	100.0%
Disinfection by products	n/a	n/a	n/a	n/a	n/a

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

6.01.4. Analysis of current health performance (2016-17)

Figure 6.01.4-a Microbiological non-compliances by month (2016-17)

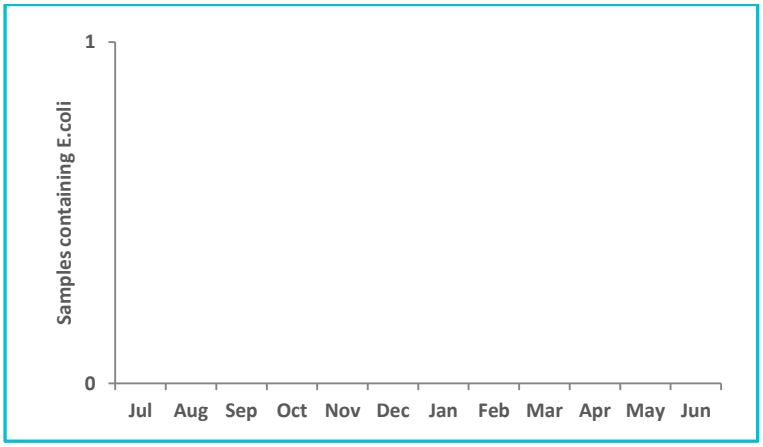


Table 6.01.4-b Metals performance 2016-17

Metals – health regulated parameters (2016–17)								
Parameter	**Limit**	**Unit**	**Samples**	**Exceedances**	**Performance %**	**Mean**	**Min.**	**Max.**
Antimony	0.003	mg/L	4	0	100	<0.0005	<0.0005	<0.0005
Arsenic	0.01	mg/L	4	0	100	0.0005	<0.0003	<0.001
Barium	2	mg/L	4	0	100	0.0008	0.0006	<0.001
Cadmium	0.002	mg/L	4	0	100	<0.0001	<0.0001	<0.0001
Chromium	0.05	mg/L	4	0	100	0.0006	0.0003	<0.001
Copper	2	mg/L	4	0	100	0.06	0.051	0.0708
Lead	0.01	mg/L	4	0	100	0.0008	0.0005	0.001
Manganese	0.5	mg/L	4	0	100	0.005	0.003	0.0059
Mercury	0.001	mg/L	4	0	100	0.00005	<0.00003	0.00009
Molybdenum	0.05	mg/L	4	0	100	0.0004	0.0003	<0.0005
Nickel	0.02	mg/L	4	0	100	0.0003	<0.0001	0.0007
Selenium	0.01	mg/L	4	0	100	0.0006	<0.0001	<0.002

6.01.5. Analysis of overall system performance (2016-17)

Table 6.01.5-a General physical performance 2016-17

General physical parameters (2016-17)					
Parameter	**Unit**	**Guideline Value**	**Mean**	**Min**	**Max**
Chlorine residual	mg/L	0.1 - <0.8	n/a	n/a	n/a
Colour True	HU	15	5.3	4	7
pH	Units	6.5 – 8.5	6.74	5.88	7.43
Turbidity	NTU	1	0.37	0.16	0.81

6.02. Avoca drinking water system

6.02.1. System summary (2016-17)

Avoca drinking water system	
System status (as at 30 June 2017)	DNC
Total number of connections	132
Fluoride	n/a

Performance overview against health targets (2016-17)

Indicator	Outcome	Compliant	Target	Sampling Events	Non-conformances
Microbiological	100.0%	☑	98.0%	12	0
Fluoride	n/a	n/a	n/a	n/a	n/a
Metals	100.0%	☑	100.0%	4	0
DBPs	75.0%	☒	100.0%	4	4

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

Overall system performance (2016-17)

Indicator	Occurrences	Details
Customer complaints	1	Boil Water & DNC alerts.
Public health warnings issued	0	DNC issued FY2015-16
System incidents & issues	4	DBP test exceedances
Catchment and water source issues	0	

Current and future planned infrastructure and operational changes

Project	Description	Progress	Est. Delivery	Est. Spend
Regional Towns Water Supply Strategy	Upgrade of water supply systems to remove PHAs - work package.	Commissioning	July 2017	$4.8 million

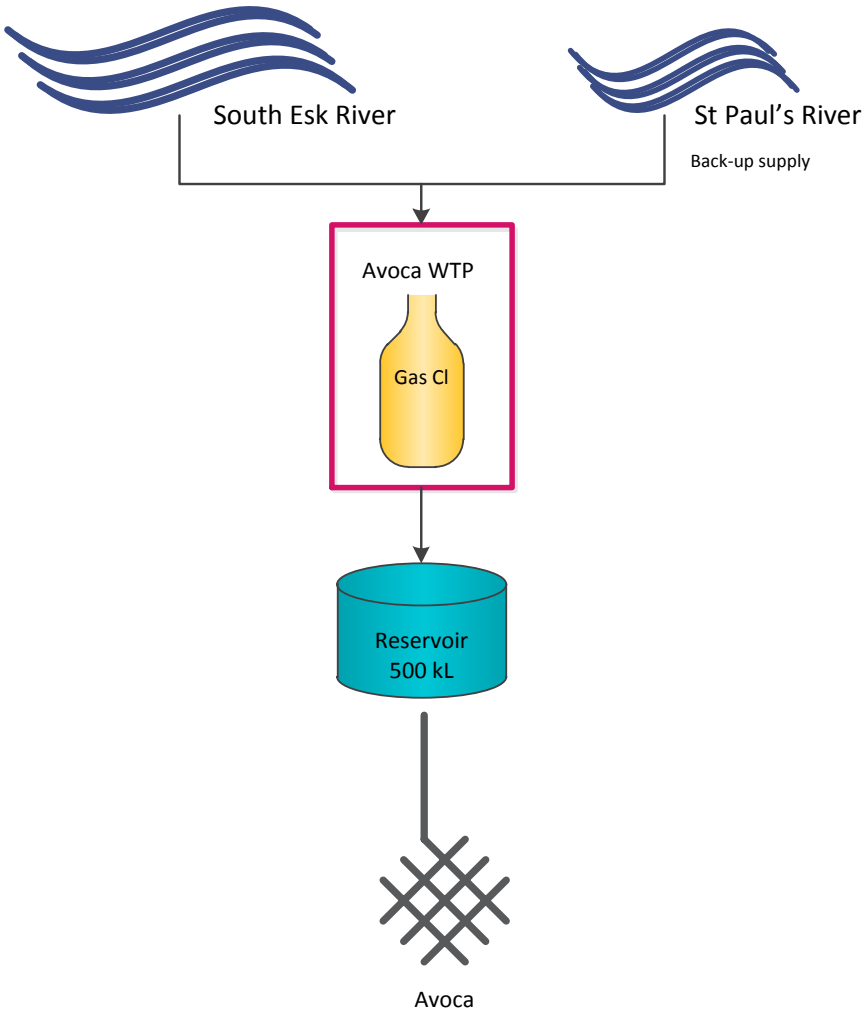


Figure 6.02.1-a Avoca system schematic

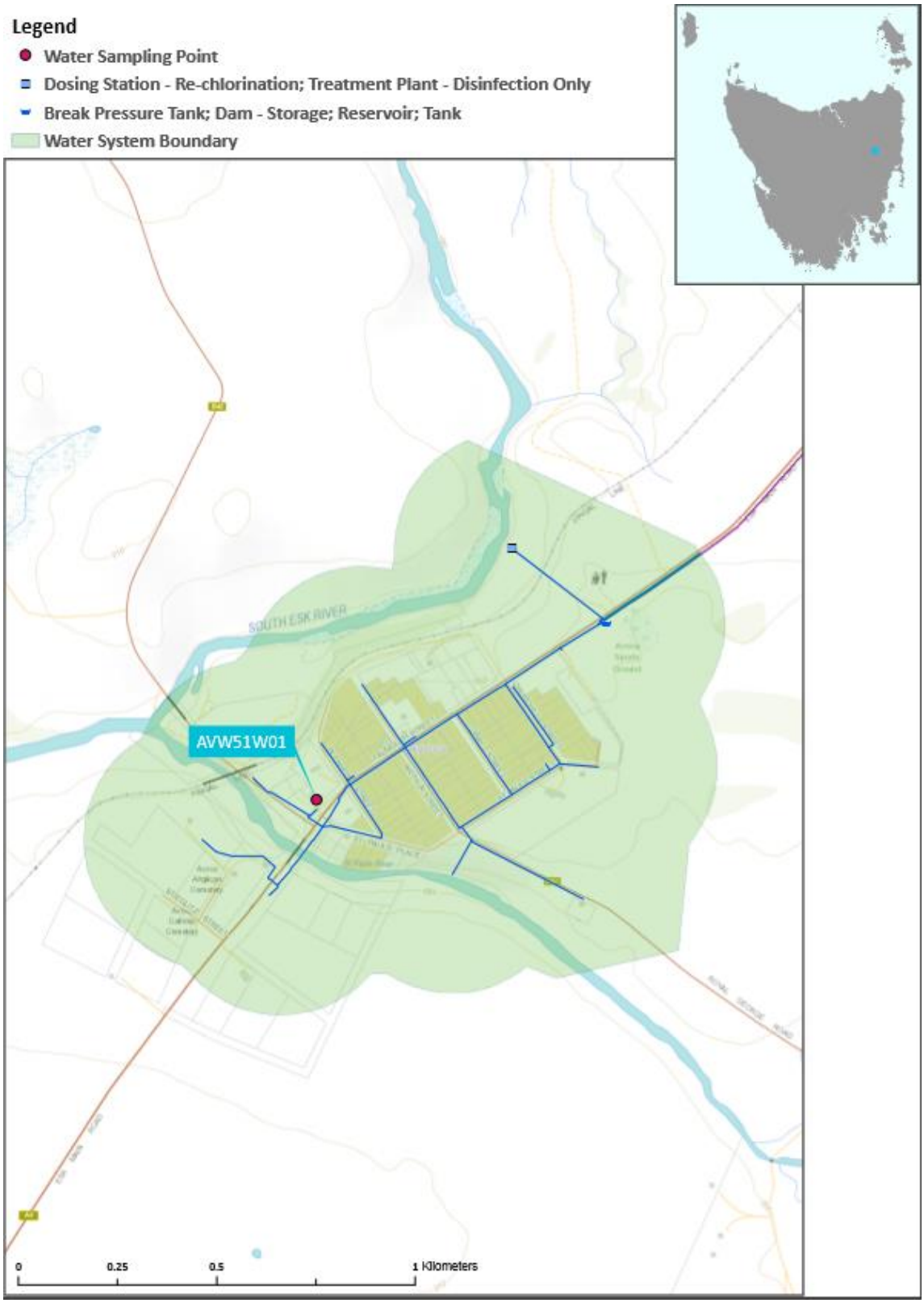


Figure 6.02.1-b Map of Avoca monitoring system

6.02.2. Summary of Annual Reticulation Compliance (2016–17)

Table 6.02.2-a Compliance sampling program

Planned compliance sampling program (2016-17)								
Site name	Site Code	Micros	Metals	DBP	Fluoride (Field)	Fluoride (Lab)	Chemical Profile	Process Chemicals
Avoca/Crn Falmouth & Arthur	AVW51W01	M	Q	Q	n/a	n/a	Q	n/a
Number Planned Samples		**12**	**4**	**4**	**0**	**0**	**0**	**0**
Number Samples Tested		**12**	**4**	**4**	**0**	**0**	**0**	**0**

6.02.3. Summary of current and historic performance (2012-17)

Table 6.02.3-a Historical health performance overview (5 year comparison)

Historical health performance overview (5 year comparison)					
Indicator	2012-13	2013-14	2014-15	2015-16	2016-17
Microbiological	98.0%	100.0%	96.0%	100.0%	100.0%
Fluoride	n/a	n/a	n/a	n/a	n/a
Metals	94.0%	97.0%	98.0%	98.0%	100.0%
Disinfection by products	100.0%	100.0%	100.0%	69.0%	75.0%

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

6.02.4. Analysis of current health performance (2016-17)

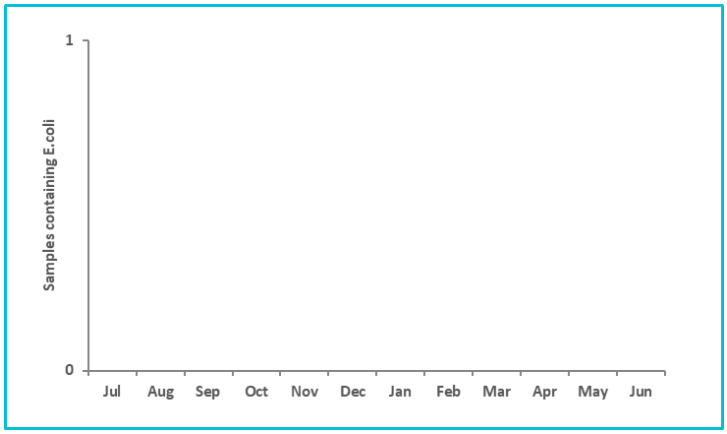


Figure 6.02.4-a Microbiological non-compliances by month (2016-17)

Table 6.02.4-a Metals performance 2016-17

Metals – health regulated parameters (2016–17)								
Parameter	**Limit**	**Unit**	**Samples**	**Exceedances**	**Performance %**	**Mean**	**Min.**	**Max.**
Antimony	0.003	mg/L	4	0	100	<0.0005	<0.0005	<0.0005
Arsenic	0.01	mg/L	4	0	100	0.0006	<0.0003	<0.001
Barium	2	mg/L	4	0	100	0.0087	0.0064	0.0101
Cadmium	0.002	mg/L	4	0	100	0.0005	0.0001	0.0009
Chromium	0.05	mg/L	4	0	100	0.0005	<0.0001	<0.001
Copper	2	mg/L	4	0	100	0.0093	0.0038	0.0211
Lead	0.01	mg/L	4	0	100	0.0008	0.0002	0.0016
Manganese	0.5	mg/L	4	0	100	0.0058	0.0024	0.01
Mercury	0.001	mg/L	4	0	100	0.00004	<0.00003	0.00005
Molybdenum	0.05	mg/L	4	0	100	0.0002	<0.0001	<0.0005
Nickel	0.02	mg/L	4	0	100	0.0003	<0.0001	0.0006
Selenium	0.01	mg/L	4	0	100	0.0006	<0.0001	<0.002

Table 6.02.4-b Disinfection by product performance 2016-17

Disinfection by products – health regulated parameters (2016–17)								
Parameter	Limit	Unit	Samples	Exceedances	Performance %	Mean	Min.	Max.
Dichloroacetic acid	100	µg/L	4	2 #	85	68	11	130
Monochloroacetic acid	150	µg/L	4	0	100	3.5	<3	5
Trichloroacetic acid	100	µg/L	4	2#	85	21	21	222
Total trihalomethanes	250	µg/L	4	0	100	50	50	198

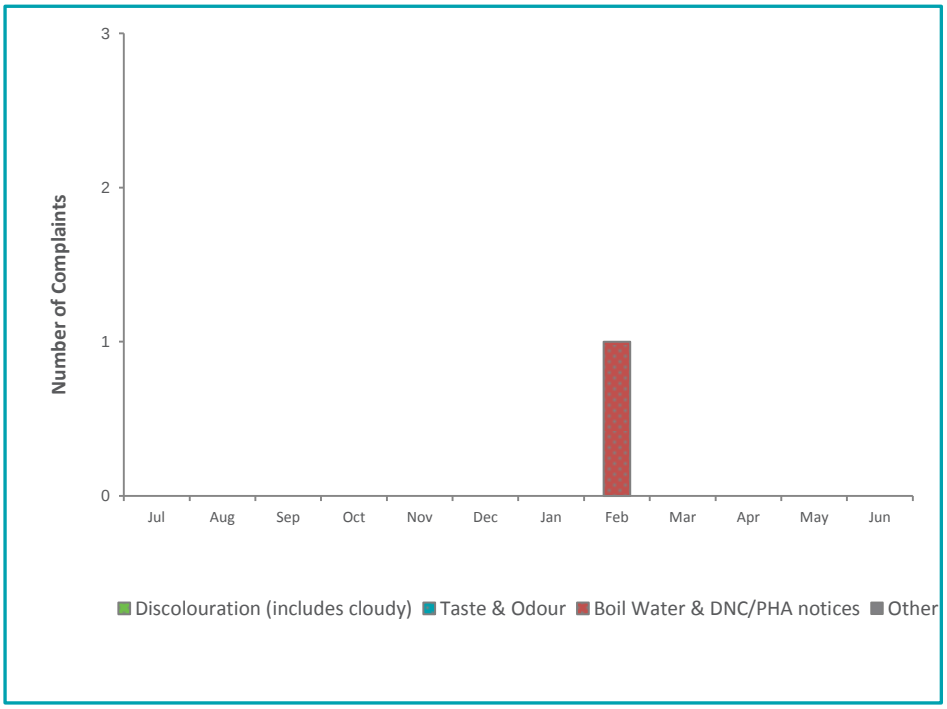
- # DBPs were detected above the ADWG health limits in September and December 2016. Due to a lack of filtration barriers, precursors to DBPs such as organic matter are not removed. Chlorine residuals are maintained to provide disinfection.

6.02.5. Analysis of overall system performance (2016-17)

Table 6.02.5-a General physical performance 2016-17

General physical parameters (2016-17)					
Parameter	Unit	Guideline Value	Mean	Min	Max
Chlorine residual	mg/L	0.1 - <0.8	0.55	0.02	1.55
Colour True	HU	15	1.38	<1	11
pH	Units	6.5 – 8.5	7.07	5.38	7.71
Turbidity	NTU	1	1.57	0.17	14.8

Figure 6.02.5-b Customer complaints by month and type



6.03. Bicheno drinking water system

6.03.1. System summary (2016-17)

Bicheno drinking water system	
System status (as at 30 June 2017)	Potable
Total number of connections	956
Fluoride	Sodium Fluoride

Performance overview against health targets (2016-17)

Indicator	Outcome	Compliant	Target	Sampling Events	Non-conformances
Microbiological	100.0%	☑	98.0%	52	0
Fluoride	100.0%	☑	100.0%	82	0
Metals	100.0%	☑	100.0%	4	0
DBPs	100.0%	☑	100.0%	4	0

on or below target within 10% of target greater than 10% outside target

Refer to 5.2 Performance indicators against health targets

Overall system performance (2016-17)

Indicator	Occurrences	Details
Customer complaints	2	Discoloured water.
Public health warnings issued	0	
System incidents & issues	0	
Catchment and water source issues	0	

Current and future planned infrastructure and operational changes

Project	Description	Progress	Est. Delivery	Est. Spend
n/a	n/a	n/a	n/a	n/a

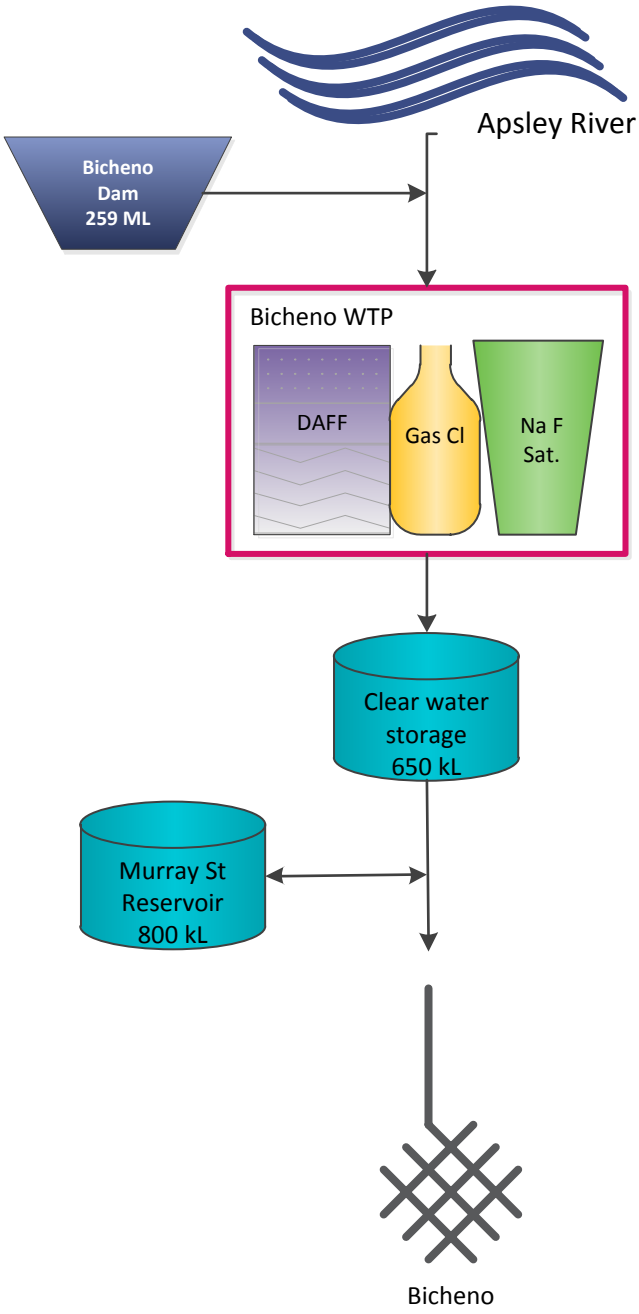


Figure 6.03.1-a Bicheno system schematic

Figure 6.03.1-b Map of Bicheno monitoring system

6.03.2. Summary of Annual Reticulation Compliance (2016–17)

Table 6.03.2-a Compliance sampling program

Planned compliance sampling program (2016-17)								
Site name	Site Code	Micros	Metals	DBP	Fluoride (Field)	Fluoride (Lab)	Chemical Profile	Process Chemicals
Bicheno Primary School/Garden Tap	GBSTE83	W	Q	Q	W	M	Q	n/a
Bicheno/47 Tasman Hwy next to SPS	GBSTE84	n/a	n/a	n/a	W	n/a	n/a	n/a
Number Planned Samples		**52**	**4**	**4**	**104**	**12**	**4**	**0**
Number Samples Tested		**52**	**4**	**4***	**82#**	**12**	**4**	**0**

Fluoride dosing was off from mid-December 2016 to end of February 2017.

* HAA's not tested in February due to issue with sample collection.

6.03.3. Summary of current and historic performance (2012-17)

Table 6.03.3-a Historical health performance overview (5 year comparison)

Historical health performance overview (5 year comparison)					
Indicator	**2012-13**	**2013-14**	**2014-15**	**2015-16**	**2016-17**
Microbiological	100.0%	100.0%	100.0%	100.0%	100.0%
Fluoride	n/a	n/a	n/a	100.0%	100.0%
Metals	100.0%	100.0%	100.0%	100.0%	100.0%
Disinfection by products	100.0%	100.0%	100.0%	100.0%	100.0%

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

Table 6.03.3-b Distribution fluoride testing overview (5 year comparison)

Distribution fluoride testing overview (5 year comparison)					
Indicator	**2012-13**	**2013-14**	**2014-15**	**2015-16**	**2016-17**
Exceeding 1.5 mg/L	n/a	n/a	n/a	0	0
Within target range (%)	n/a	n/a	n/a	85.5%	57.3%
Mean dose (mg/L)	n/a	n/a	n/a	0.92	0.73

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

- The Bicheno fluoridation station was off for maintenance intermittently throughout the financial year resulting in low fluoride readings in the reticulation network.

6.03.4. Analysis of current health performance (2016-17)

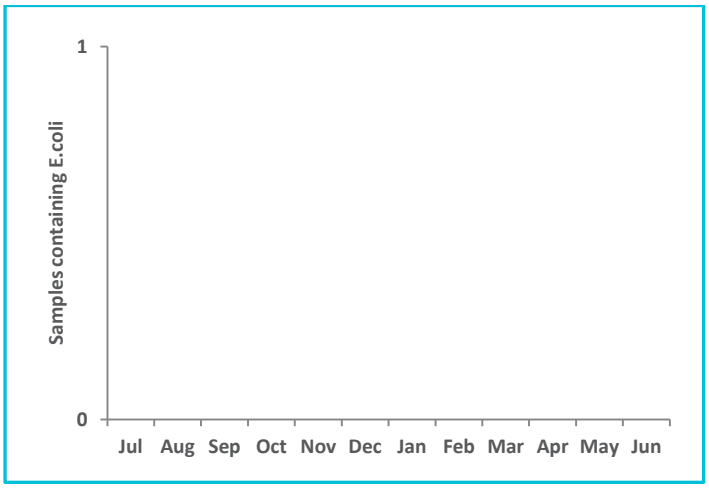


Figure 6.03.4-a Microbiological non-compliances by month (2016-17)

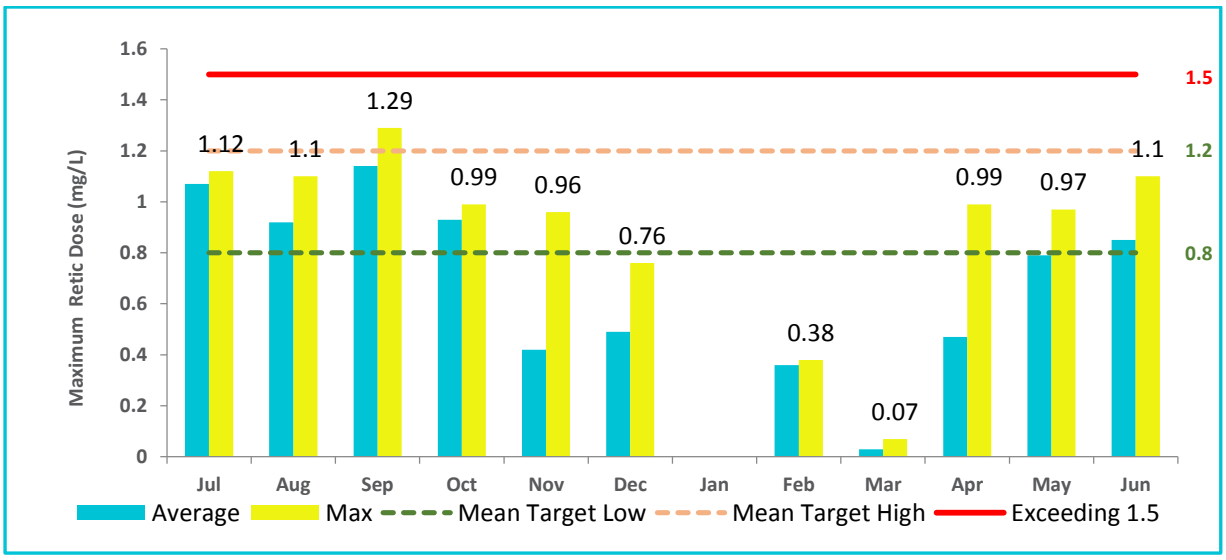


Figure 6.03.4-b Average reticulation fluoride dose by month (2016-17)

Table 6.03.4-a Metals performance (2016-17)

Metals – health regulated parameters (2016–17)								
Parameter	**Limit**	**Unit**	**Samples**	**Exceedances**	**Performance %**	**Mean**	**Min.**	**Max.**
Antimony	0.003	mg/L	4	0	100	<0.0005	<0.0005	0.0007
Arsenic	0.01	mg/L	4	0	100	0.0002	<0.0001	<0.0003
Barium	2	mg/L	4	0	100	0.002	0.002	0.003
Cadmium	0.002	mg/L	4	0	100	<0.0001	<0.0001	<0.0001
Chromium	0.05	mg/L	4	0	100	0.0005	<0.0001	<0.001
Copper	2	mg/L	4	0	100	0.005	0.003	0.008
Lead	0.01	mg/L	4	0	100	0.0003	0.0002	0.0003
Manganese	0.5	mg/L	4	0	100	0.0009	0.0007	0.001
Mercury	0.001	mg/L	4	0	100	0.00007	0.00005	0.00011
Molybdenum	0.05	mg/L	4	0	100	0.0003	<0.0001	<0.0005
Nickel	0.02	mg/L	4	0	100	0.001	<0.0001	0.0042
Selenium	0.01	mg/L	4	0	100	0.001	<0.0001	<0.002

Table 6.03.4-b Disinfection by product performance (2016-17)

Disinfection by products – health regulated parameters (2016–17)								
Parameter	Limit	Unit	Samples	Exceedances	Performance %	Mean	Min.	Max.
Dichloroacetic acid	100	µg/L	3	0	100	1.67	1	2
Monochloroacetic acid	150	µg/L	3	0	100	<5	<3	<5
Trichloroacetic acid	100	µg/L	3	0	100	3	2	4
Total trihalomethanes	250	µg/L	4	0	100	38	33	44

- * HAA's not tested in February due to issue with sample collection.

6.03.5. Analysis of overall system performance (2016-17)

Table 6.03.5-a General physical performance

General physical parameters (2016-17)					
Parameter	Unit	Guideline Value	Mean	Min	Max
Chlorine residual	mg/L	0.1 - <0.8	0.24	0.0	0.5
Colour True	HU	15	6.5	<1	15
pH	Units	6.5 – 8.5	7.41	6.67	7.75
Turbidity	NTU	1	0.53	0.19	3.36

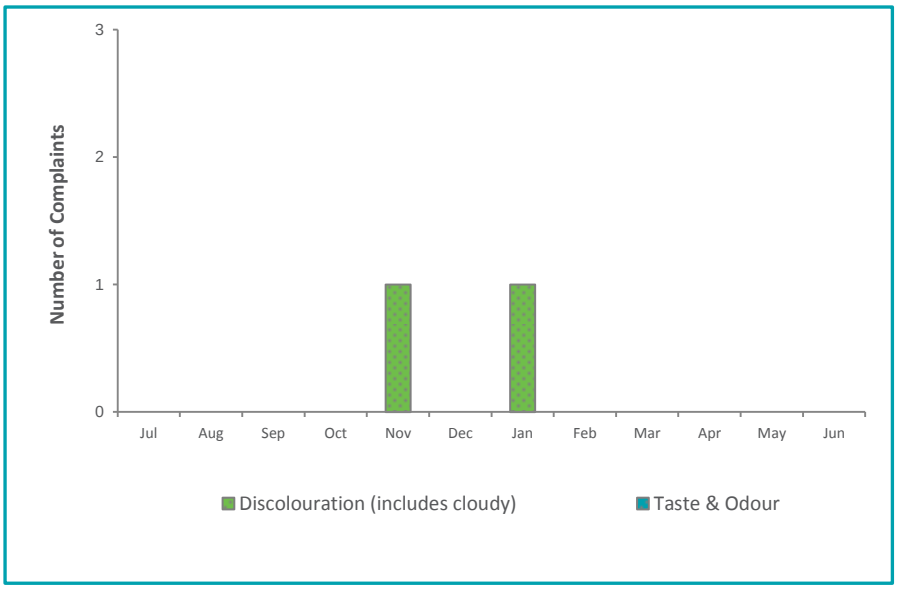


Figure 6.03.5-a Customer complaints by month and type

6.04. Bothwell drinking water system

6.04.1. System summary (2016-17)

Bothwell drinking water system	
System status (as at 30 June 2017)	Potable
Total number of connections	291
Fluoride	n/a

Performance overview against health targets (2016-17)

Indicator	Outcome	Compliant	Target	Sampling Events	Non-conformances
Microbiological	100.0%	☑	98.0%	52	0
Fluoride	n/a	n/a	n/a	n/a	n/a
Metals	100.0%	☑	100.0%	4	0
DBPs	100.0%	☑	100.0%	4	0

on or below target within 10% of target greater than 10% outside target

Refer to 5.2 Performance indicators against health targets

Overall system performance (2016-17)

Indicator	Occurrences	Details
Customer complaints	5	Taste & odour, boil water & DNC alerts.
Public health warnings issued	0	
System incidents & issues	0	
Catchment and water source issues	1	Trace levels of pesticides were detected in the catchment. All results were well below ADWG health limits.

Current and future planned infrastructure and operational changes

Project	Description	Progress	Est. Delivery	Est. Spend
n/a	n/a	n/a	n/a	n/a

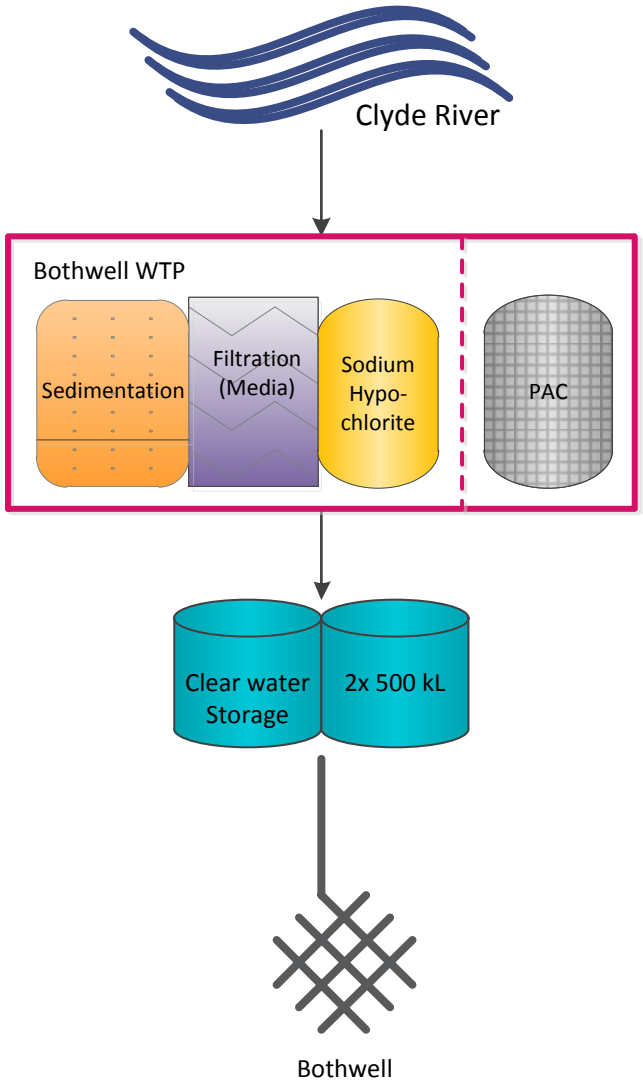


Figure 6.04.1-a Bothwell system schematic

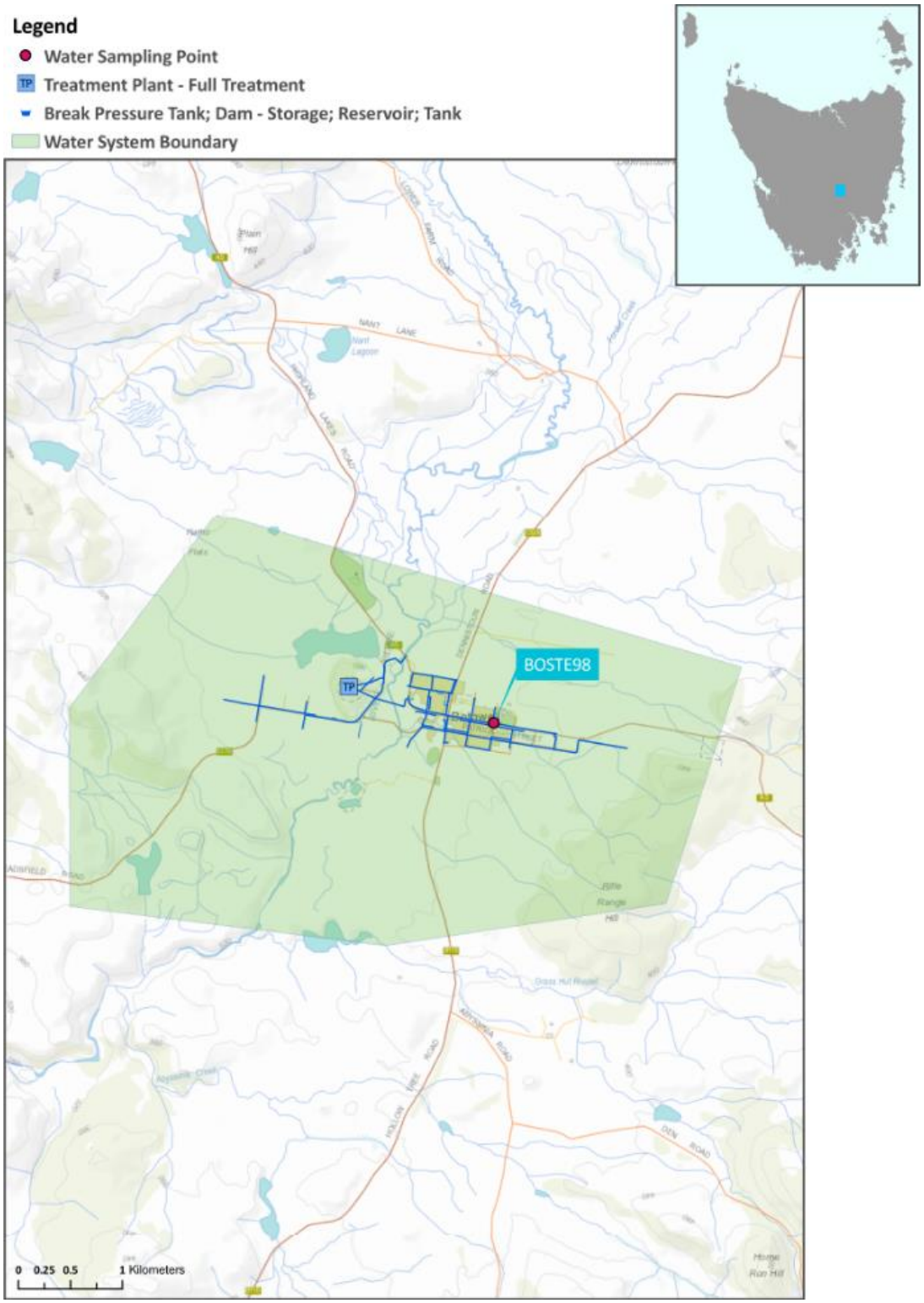


Figure 6.04.1-b Map of Bothwell monitoring system

6.04.2. Summary of Annual Reticulation Compliance (2016–17)

Table 6.04.2-a Compliance sampling program

Planned compliance sampling program (2016-17)								
Site name	Site Code	Micros	Metals	DBP	Fluoride (Field)	Fluoride (Lab)	Chemical Profile	Process Chemicals
Bothwell/Michael St, Sample Tap	BOSTE98	W	Q	Q	n/a	n/a	Q	n/a
Number Planned Samples		**52**	**4**	**4**	**0**	**0**	**4**	**0**
Number Samples Tested		**52**	**4**	**4**	**0**	**0**	**4**	**0**

6.04.3. Summary of current and historic performance (2012-17)

Table 6.04.3-a Historical health performance overview (5 year comparison)

Historical health performance overview (5 year comparison)					
Indicator	2012-13	2013-14	2014-15	2015-16	2016-17
Microbiological	100.0%	99.5%	100.0%	100.0%	100.0%
Fluoride	n/a	n/a	n/a	n/a	n/a
Metals	100.0%	100.0%	100.0%	100.0%	100.0%
Disinfection by products	100.0%	100.0%	100.0%	100.0%	100.0%

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

6.04.4. Analysis of current health performance (2016-17)

Figure 6.04.4-a Microbiological non-compliances by month (2016-17)

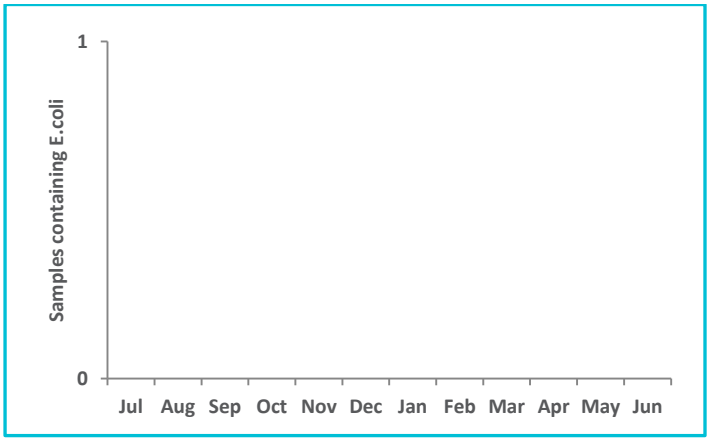


Table 6.04.4-a Metals performance 2016-17

Metals – health regulated parameters (2016–17)								
Parameter	**Limit**	**Unit**	**Samples**	**Exceedances**	**Performance %**	**Mean**	**Min.**	**Max.**
Antimony	0.003	mg/L	4	0	100	<0.0005	<0.0005	<0.0005
Arsenic	0.01	mg/L	4	0	100	0.0005	<0.0003	<0.001
Barium	2	mg/L	4	0	100	0.014	0.0115	0.015
Cadmium	0.002	mg/L	4	0	100	<0.0001	<0.0001	<0.0001
Chromium	0.05	mg/L	4	0	100	0.0003	<0.0001	<0.001
Copper	2	mg/L	4	0	100	0.0045	0.0034	0.0052
Lead	0.01	mg/L	4	0	100	0.0003	0.0001	<0.0005
Manganese	0.5	mg/L	4	0	100	0.005	0.0036	0.0103
Mercury	0.001	mg/L	4	0	100	0.00017	<0.00005	0.00037
Molybdenum	0.05	mg/L	4	0	100	0.0002	<0.0001	<0.0005
Nickel	0.02	mg/L	4	0	100	0.0007	0.0006	0.0008
Selenium	0.01	mg/L	4	0	100	0.0006	<0.0001	<0.002

Table 6.04.4-b Disinfection by product performance 2016-17

Disinfection by products – health regulated parameters (2016–17)								
Parameter	Limit	Unit	Samples	Exceedances	Performance %	Mean	Min.	Max.
Dichloroacetic acid	100	µg/L	4	0	100	8.5	5	14
Monochloroacetic acid	150	µg/L	4	0	100	<5	<3	<5
Trichloroacetic acid	100	µg/L	4	0	100	10.25	8	16
Total trihalomethanes	250	µg/L	4	0	100	44.75	37	56

6.04.5. Analysis of overall system performance (2016-17)

Table 6.04.5-a General physical performance 2016-17

General physical parameters (2016-17)					
Parameter	Unit	Guideline Value	Mean	Min	Max
Chlorine residual	mg/L	0.1 - <0.8	0.27	0.05	0.61
Colour True	HU	15	<1	<1	<1
pH	Units	6.5 – 8.5	6.76	6.45	7.41
Turbidity	NTU	1	0.81	0.27	3.51

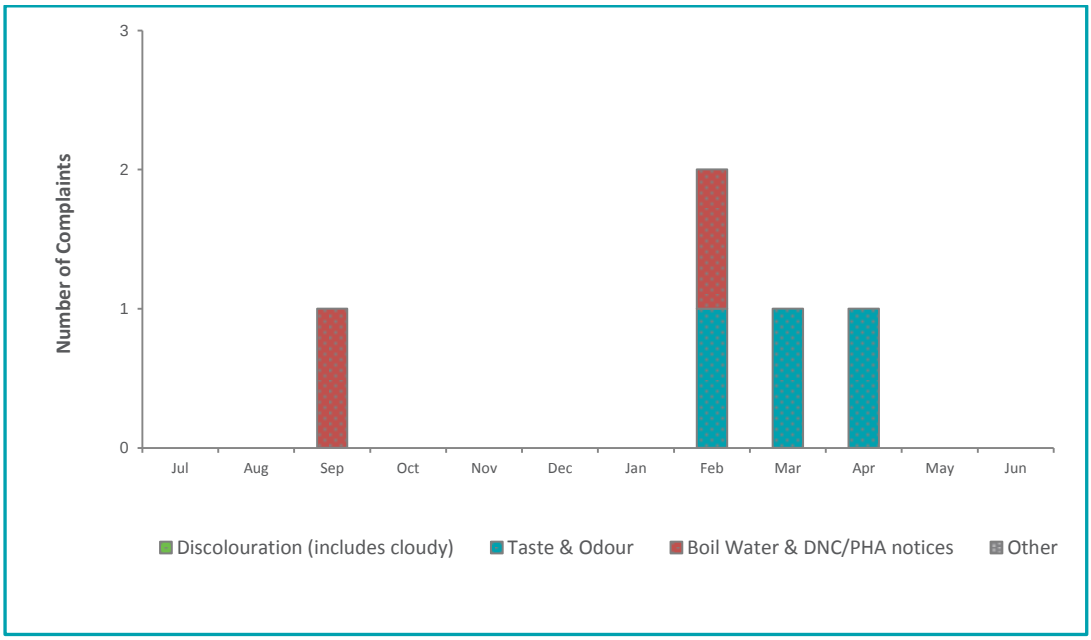


Figure 6.04.5-a Customer complaints by month and type

6.05. Bracknell drinking water system

6.05.1. System summary (2016-17)

Bracknell drinking water system	
System status (as at 30 June 2017)	Potable
Total number of connections	200
Fluoride	n/a

Performance overview against health targets (2016-17)

Indicator	Outcome	Compliant	Target	Sampling Events	Non-conformances
Microbiological	100.0%	☑	98.0%	52	0
Fluoride	n/a	n/a	n/a	n/a	n/a
Metals	100.0%	☑	100.0%	4	0
DBPs	100.0%	☑	100.0%	4	0

on or below target within 10% of target greater than 10% outside target

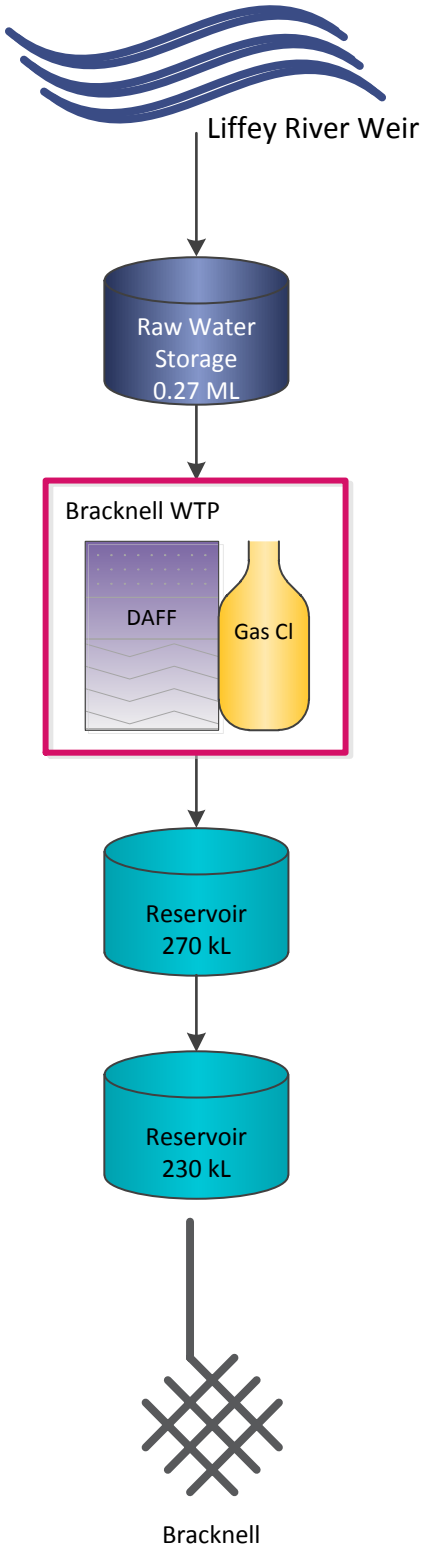
Refer to 5.2 Performance indicators against health targets

Overall system performance (2016-17)

Indicator	Occurrences	Details
Customer complaints	0	
Public health warnings issued	0	
System incidents & issues	0	
Catchment and water source issues	1	Trace levels of pesticides were detected in the catchment. All results were well below the ADWG health limits.

Current and future planned infrastructure and operational changes

Project	Description	Progress	Est. Delivery	Est. Spend
n/a	n/a	n/a	n/a	n/a


Liffey River Weir
Raw Water Storage 0.27 ML
Bracknell WTP
DAFF
Gas Cl
Reservoir 270 kL
Reservoir 230 kL
Bracknell

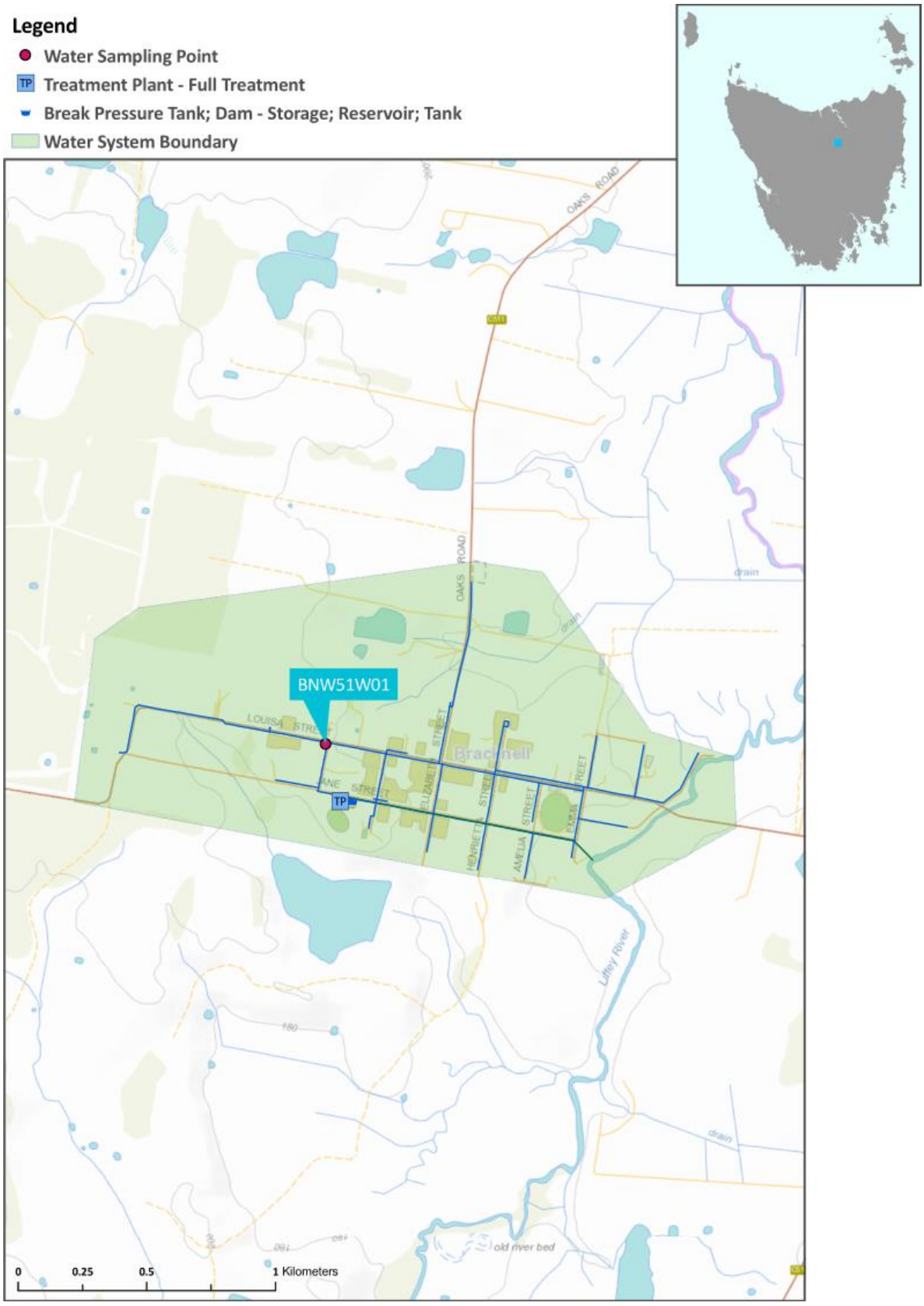


Figure 6.05.1-b Map of Bracknell monitoring system

6.05.2. Summary of Annual Reticulation Compliance (2016–17)

Table 6.05.2-a Compliance sampling program

Planned compliance sampling program (2016-17)								
Site name	Site Code	Micros	Metals	DBP	Fluoride (Field)	Fluoride (Lab)	Chemical Profile	Process Chemicals
Bracknell/Louisa Street	BNW51W01	W	Q	Q	n/a	n/a	Q	n/a
Number Planned Samples		**52**	**4**	**4**	**0**	**0**	**4**	**0**
Number Samples Tested		**52**	**4**	**4**	**0**	**0**	**4**	**0**

6.05.3. Summary of current and historic performance (2012-17)

Table 6.05.3-a Historical health performance overview (5 year comparison)

Historical health performance overview (5 year comparison)					
Indicator	2012-13	2013-14	2014-15	2015-16	2016-17
Microbiological	98%	100%	100%	100%	100%
Fluoride	n/a	n/a	n/a	n/a	n/a
Metals	100%	100%	100%	100%	100%
Disinfection by products	100%	100%	100%	100%	100%

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

6.05.4. Analysis of current health performance (2016-17)

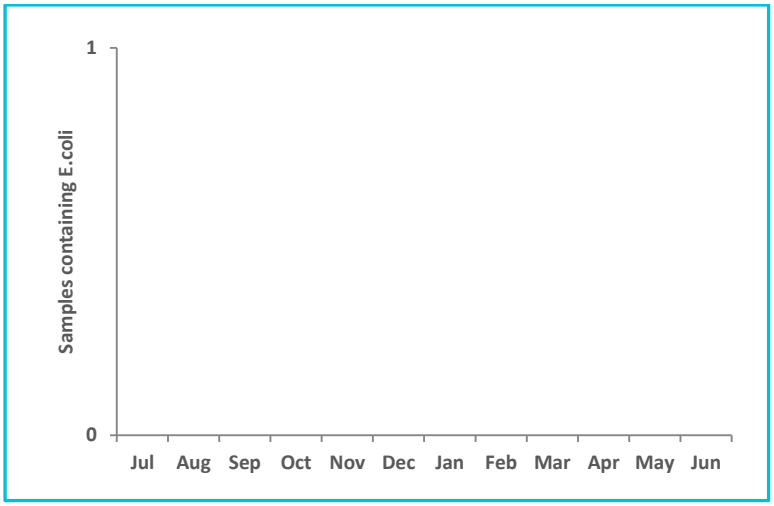


Figure 6.05.4-a Microbiological non-compliances by month (2016-17)

Table 6.05.4-a Metals performance 2016-17

Metals – health regulated parameters (2016–17)								
Parameter	**Limit**	**Unit**	**Samples**	**Exceedances**	**Performance %**	**Mean**	**Min.**	**Max.**
Antimony	0.003	mg/L	4	0	100	<0.0005	<0.0005	<0.0005
Arsenic	0.01	mg/L	4	0	100	0.0005	<0.0003	<0.001
Barium	2	mg/L	4	0	100	0.0077	0.0061	0.009
Cadmium	0.002	mg/L	4	0	100	<0.0001	<0.0001	<0.0001
Chromium	0.05	mg/L	4	0	100	0.0003	<0.0001	<0.001
Copper	2	mg/L	4	0	100	0.002	0.0002	0.0031
Lead	0.01	mg/L	4	0	100	0.0003	<0.0001	<0.0005
Manganese	0.5	mg/L	4	0	100	0.0048	0.0017	0.0101
Mercury	0.001	mg/L	4	0	100	0.00006	0.00003	0.00005
Molybdenum	0.05	mg/L	4	0	100	0.0002	<0.0001	<0.0005
Nickel	0.02	mg/L	4	0	100	0.0003	<0.0001	0.0005
Selenium	0.01	mg/L	4	0	100	0.0006	<0.0001	<0.002

Table 6.05.4-b Disinfection by product performance 2016-17

Disinfection by products – health regulated parameters (2016–17)								
Parameter	Limit	Unit	Samples	Exceedances	Performance %	Mean	Min.	Max.
Dichloroacetic acid	100	µg/L	4	0	100	11.25	5	17
Monochloroacetic acid	150	µg/L	4	0	100	<5	<3	<5
Trichloroacetic acid	100	µg/L	4	0	100	12.5	6	17
Total trihalomethanes	250	µg/L	4	0	100	25.5	15	34

6.05.5. Analysis of overall system performance (2016-17)

Table 6.05.5-a General physical performance 2016-17

General physical parameters (2016-17)					
Parameter	Unit	Guideline Value	Mean	Min	Max
Chlorine residual	mg/L	0.1 - <0.8	0.93	0.33	1.33
Colour True	HU	15	<1	<1	<1
pH	Units	6.5 – 8.5	7.65	6.98	8.33
Turbidity	NTU	1	0.20	0.06	0.81

6.06. Branxholm drinking water system

6.06.1. System summary (2016-17)

Branxholm drinking water system	
System status (as at 30 June 2017)	BWA
Total number of connections	189
Fluoride	n/a

Performance overview against health targets (2016-17)

Indicator	Outcome	Compliant	Target	Sampling Events	Non-conformances
Microbiological	16.7%	☒	98.0%	12	10
Fluoride	n/a	n/a	n/a	n/a	n/a
Metals	100.0%	☑	100.0%	4	0
DBPs	n/a	n/a	n/a	n/a	n/a

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

Overall system performance (2016-17)

Indicator	Occurrences	Details
Customer complaints	6	Discoloured water, boil water & DNC alert.
Public health warnings issued	0	
System incidents & issues	10	*E. Coli* detections
Catchment and water source issues	2	Trace levels of pesticides were detected in the catchment. All results were well below the ADWG health limits.

Current and future planned infrastructure and operational changes

Project	Description	Progress	Est. Delivery	Est. Spend ($'000)
Ringarooma Valley scheme	New WTP to supply communities of Ringarooma, Legerwood, Branxholm, Derby and Winnaleah	Completed	FY17/18	$124.82

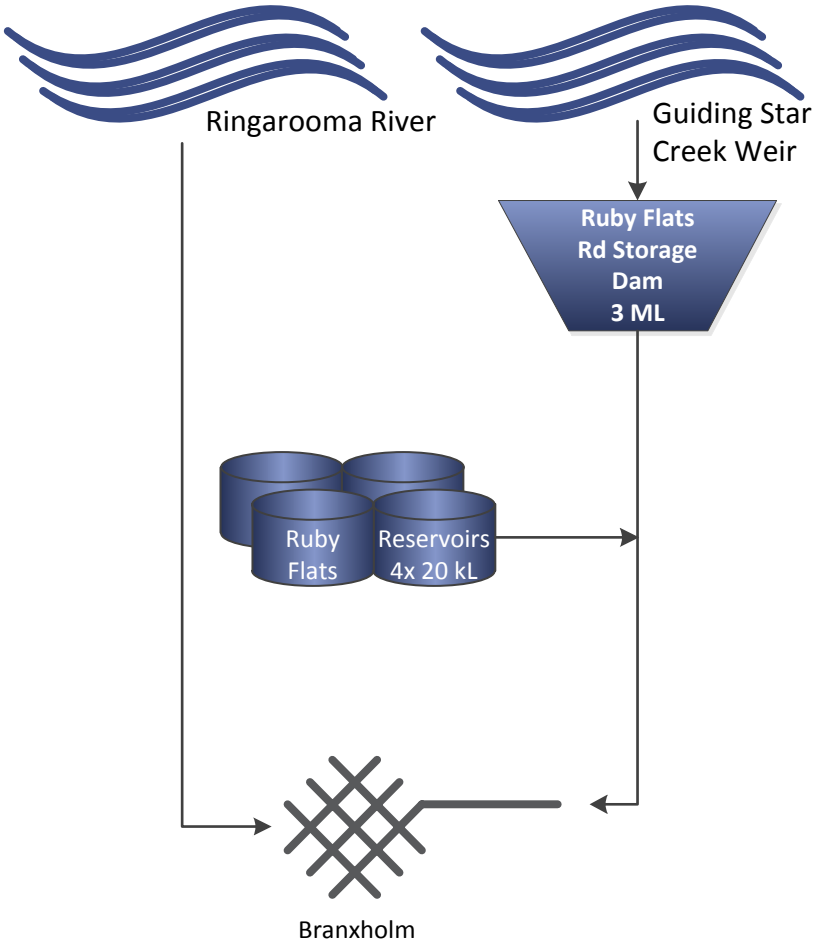


Figure 6.06.1-a Branxholm system schematic

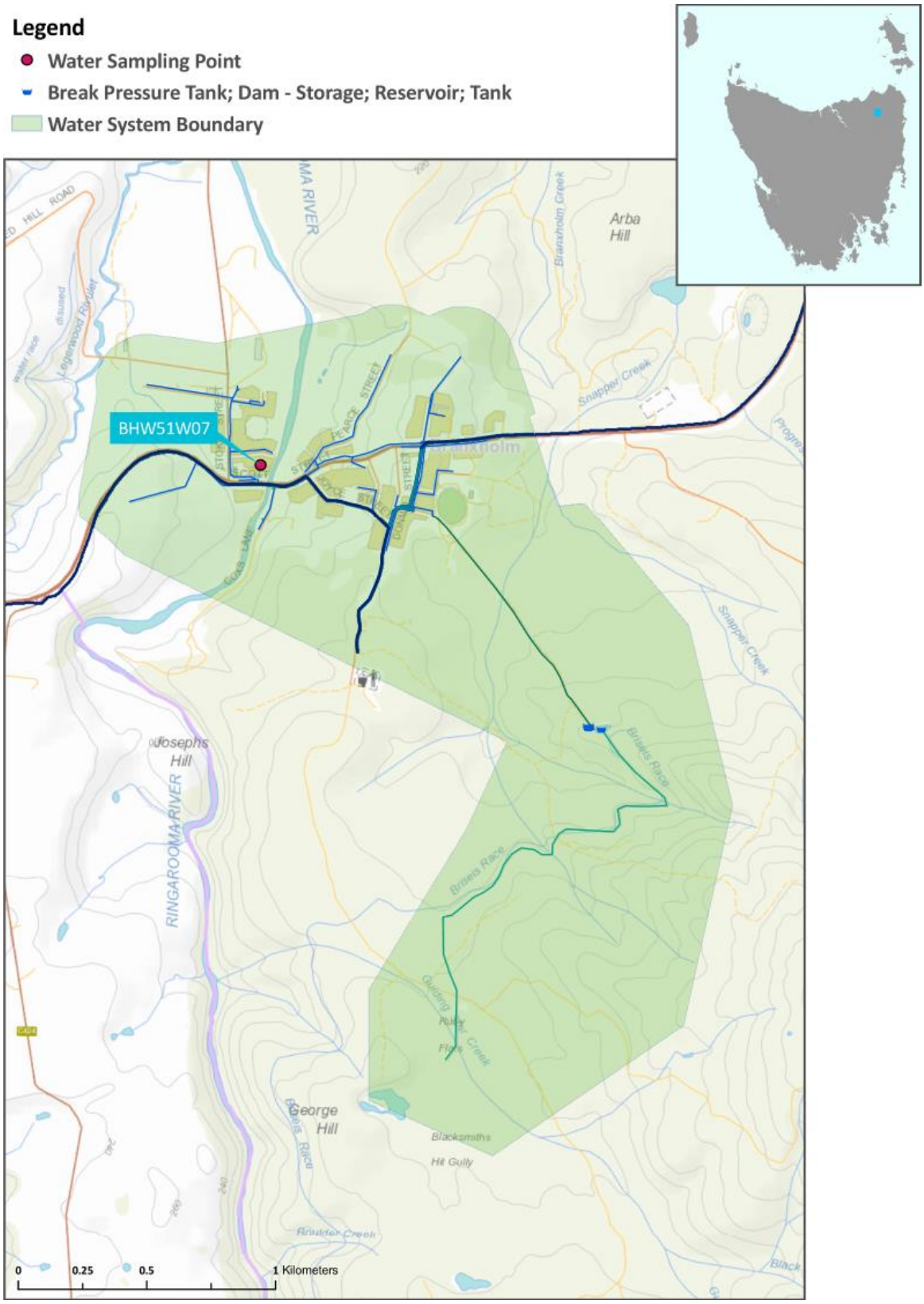


Figure 6.06.1-b Map of Branxholm monitoring system

6.06.2. Summary of Annual Reticulation Compliance (2016–17)

Table 6.06.2-a Compliance sampling program

Planned compliance sampling program (2016-17)								
Site name	Site Code	Micros	Metals	DBP	Fluoride (Field)	Fluoride (Lab)	Chemical Profile	Process Chemicals
Branxholm/Caravan Park	BHW51W07	W	Q	n/a	n/a	n/a	Q	M
Number Planned Samples		**12**	**4**	**0**	**0**	**0**	**4**	**0**
Number Samples Tested		**12**	**4**	**0**	**0**	**0**	**4**	**0**

6.06.3. Summary of current and historic performance (2012-17)

Table 6.06.3-a Historical health performance overview (5 year comparison)

Historical health performance overview (5 year comparison)					
Indicator	2012-13	2013-14	2014-15	2015-16	2016-17
Microbiological	0.0%	19.0%	8.0%	0.0%	16.6%
Fluoride	n/a	n/a	n/a	n/a	n/a
Metals	100.0%	100.0%	100.0%	100.0%	100.0%
Disinfection by products	n/a	n/a	n/a	n/a	n/a

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

- The risk to public health is mitigated through a BWA.

6.06.4. Analysis of current health performance (2016-17)

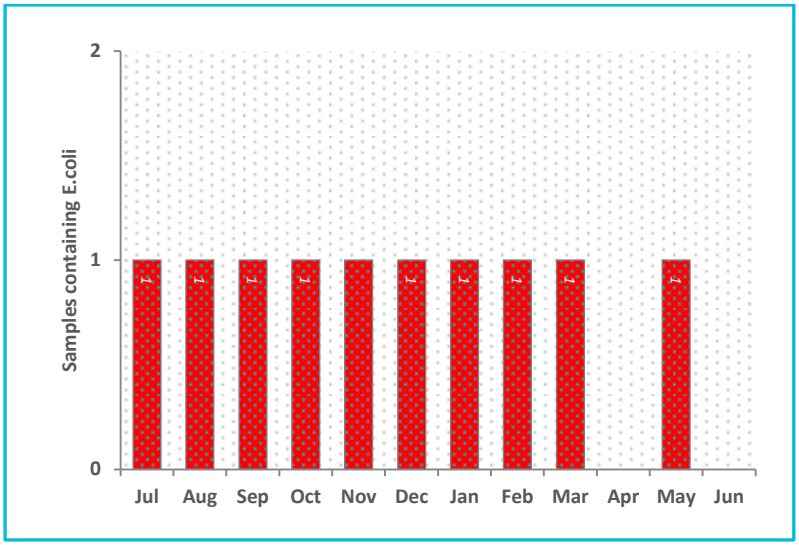


Figure 6.06.4-a Microbiological non-compliances by month (2016-17)

- This is a raw water system with no treatment. Water from the new Ringarooma WTP started in April 2017.

Table 6.06.4-a Metals performance 2016-17

Metals – health regulated parameters (2016–17)								
Parameter	**Limit**	**Unit**	**Samples**	**Exceedances**	**Performance %**	**Mean**	**Min.**	**Max.**
Antimony	0.003	mg/L	4	0	100	<0.0005	<0.0005	<0.0005
Arsenic	0.01	mg/L	4	0	100	0.0005	<0.0003	<0.001
Barium	2	mg/L	4	0	100	0.0089	0.0073	0.01
Cadmium	0.002	mg/L	4	0	100	<0.0001	<0.0001	<0.0001
Chromium	0.05	mg/L	4	0	100	0.0004	0.0001	<0.001
Copper	2	mg/L	4	0	100	0.0189	0.0121	0.033
Lead	0.01	mg/L	4	0	100	0.0015	0.0006	0.0025
Manganese	0.5	mg/L	4	0	100	0.0055	0.0003	0.008
Mercury	0.001	mg/L	4	0	100	0.00004	<0.00003	<0.00005
Molybdenum	0.05	mg/L	4	0	100	0.0002	<0.0001	<0.0005
Nickel	0.02	mg/L	4	0	100	0.0005	0.0003	0.0006

Selenium	0.01	mg/L	4	0	100	0.0007	<0.0001	<0.002

6.06.5. Analysis of overall system performance (2016-17)

- High colour and turbidity and no treatment accounts for customer complaints and micro failures.

Table 6.06.5-a General physical performance 2016-17

General physical parameters (2016-17)					
Parameter	**Unit**	**Guideline Value**	**Mean**	**Min**	**Max**
Chlorine residual	mg/L	0.1 - <0.8	n/a	n/a	n/a
Colour True	HU	15	34	24	49
pH	Units	6.5 – 8.5	6.59	5.55	7.60
Turbidity	NTU	1	3.66	0.9	8.6

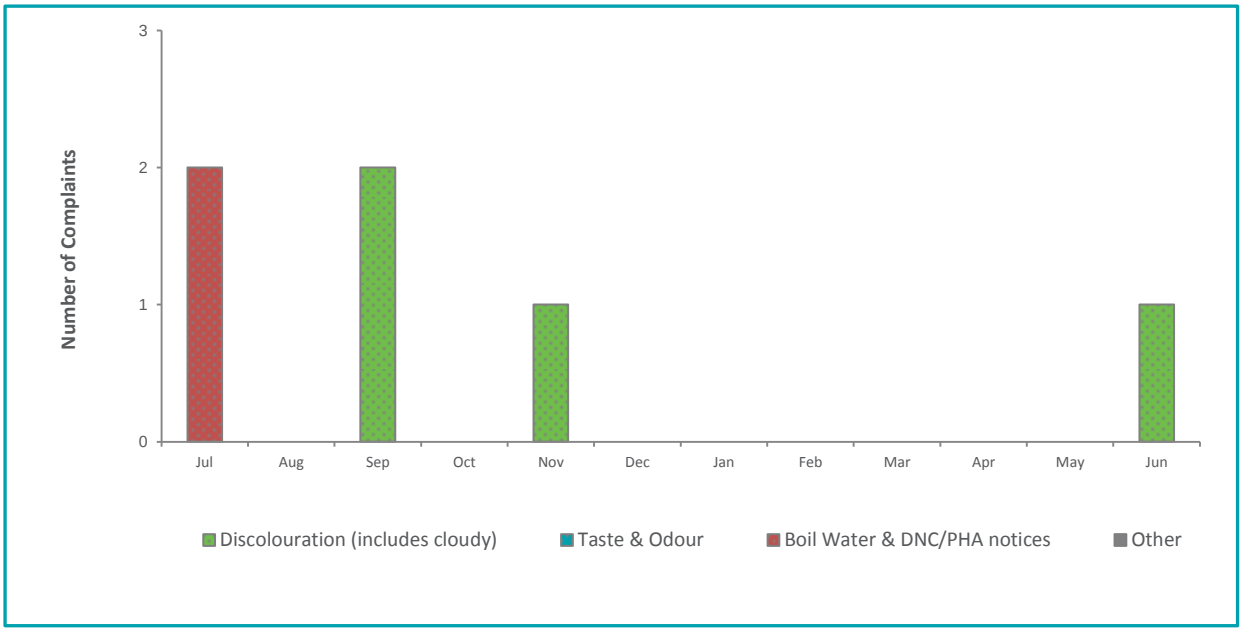


Figure 6.06.5-a Customer complaints by month and type

6.07. Bridport drinking water system

6.07.1. System summary (2016-17)

Bridport drinking water system	
System status (as at 30 June 2017)	Potable
Total number of connections	1183
Fluoride	Fluorosilicic acid

Performance overview against health targets (2016-17)

Indicator	Outcome	Compliant	Target	Sampling Events	Non-conformances
Microbiological	100.0%	☑	98.0%	104	0
Fluoride	100.0%	☑	100.0%	104	0
Metals	100.0%	☑	100.0%	4	0
DBPs	100.0%	☑	100.0%	4	0

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

Overall system performance (2016-17)

Indicator	Occurrences	Details
Customer complaints	9	Discoloured water.
Public health warnings issued	0	
System incidents & issues	0	
Catchment and water source issues	2	Trace pesticides were detected in the Brid River catchment. All results were well below the ADWG health limits and pose no risk to the water supply.

Current and future planned infrastructure and operational changes

Project	Description	Progress	Est. Delivery	Est. Spend
n/a	n/a	n/a	n/a	n/a

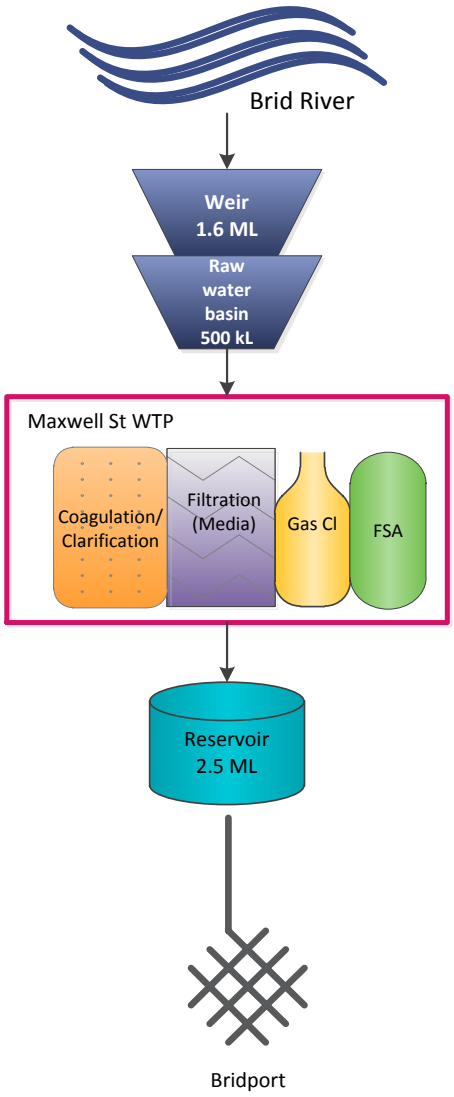


Figure 6.07.1-a Bridport system schematic

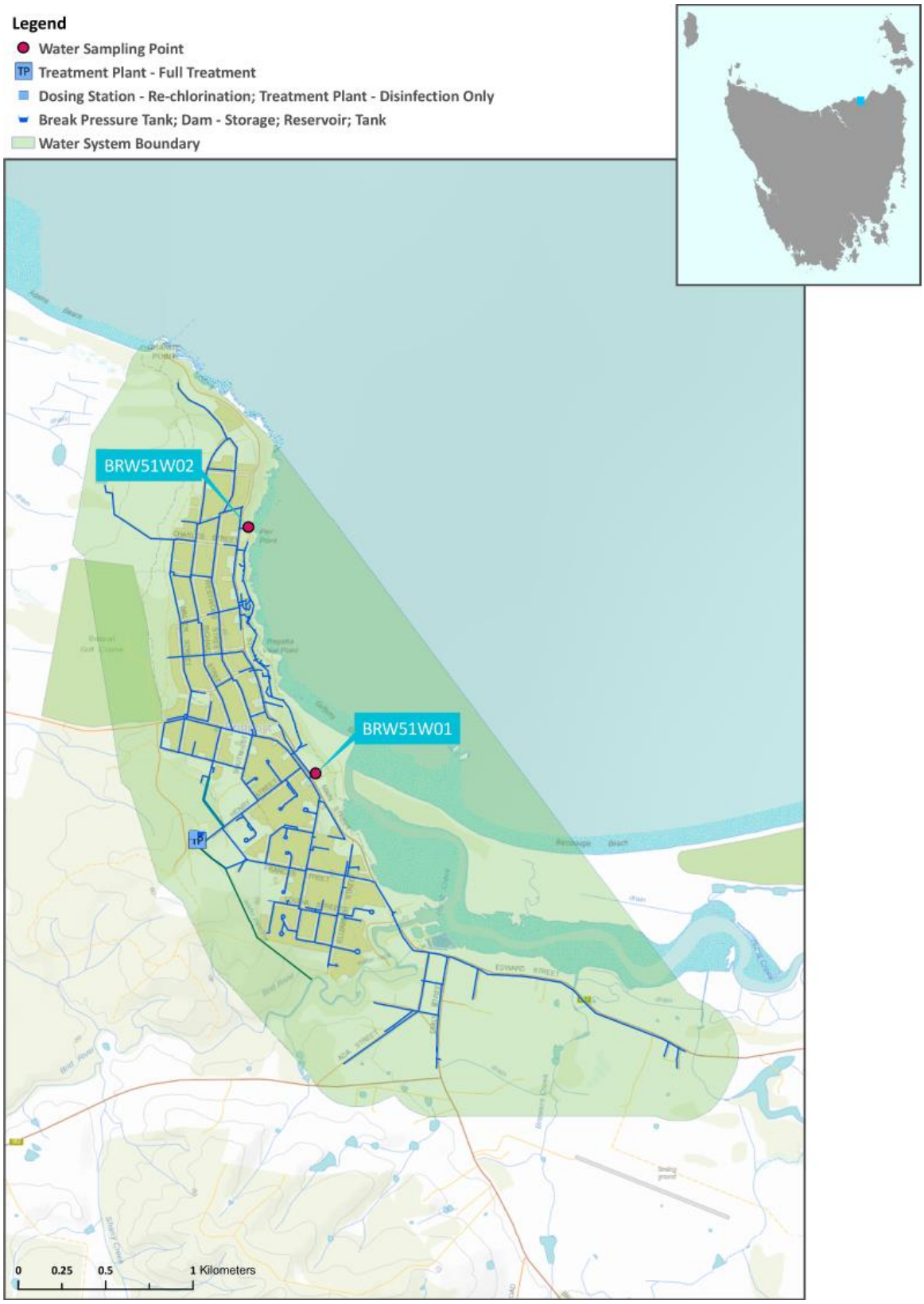


Figure 6.07.1-b Map of Bridport monitoring system

6.07.2. Summary of Annual Reticulation Compliance (2016–17)

Table 6.07.2-a Compliance sampling program

Planned compliance sampling program (2016-17)								
Site name	Site Code	Micros	Metals	DBP	Fluoride (Field)	Fluoride (Lab)	Chemical Profile	Process Chemicals
Bridport/Visitor Centre	BRW51W01	W	Q	Q	W	M	Q	n/a
Bridport/Old Pier Bentley St	BRW51W02	W	n/a	n/a	W	n/a	n/a	n/a
Number Planned Samples		**104**	**4**	**4**	**104**	**12**	**4**	**0**
Number Samples Tested		**104**	**4**	**4**	**104**	**12**	**4**	**0**

6.07.3. Summary of current and historic performance (2012-17)

Table 6.07.3-a Historical health performance overview (5 year comparison)

Historical health performance overview (5 year comparison)					
Indicator	2012-13	2013-14	2014-15	2015-16	2016-17
Microbiological	100.0%	100.0%	100.0%	100.0%	100.0%
Fluoride	Not recorded	100.0%	100.0%	100.0%	100.0%
Metals	100.0%	100.0%	100.0%	100.0%	100.0%
Disinfection by products	100.0%	100.0%	100.0%	100.0%	100.0%

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

Table 6.07.3-b Distribution fluoride testing overview (5 year comparison)

Distribution fluoride testing overview (5 year comparison)					
Indicator	**2012-13**	**2013-14**	**2014-15**	**2015-16**	**2016-17**
Exceeding 1.5 mg/L	0	0	0	0	0
Within target range (%)	Not Recorded	Not Recorded	99.0%	89.4%	95.2%
Mean dose (mg/L)	Not Recorded	Not Recorded	0.97	0.88	0.95

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

6.07.4. Analysis of current health performance (2016-17)

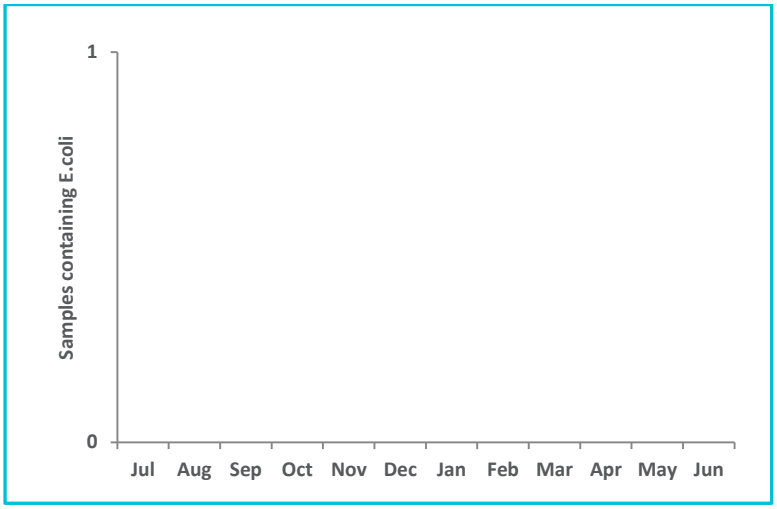


Figure 6.07.4-a Microbiological non-compliances by month (2016-17)

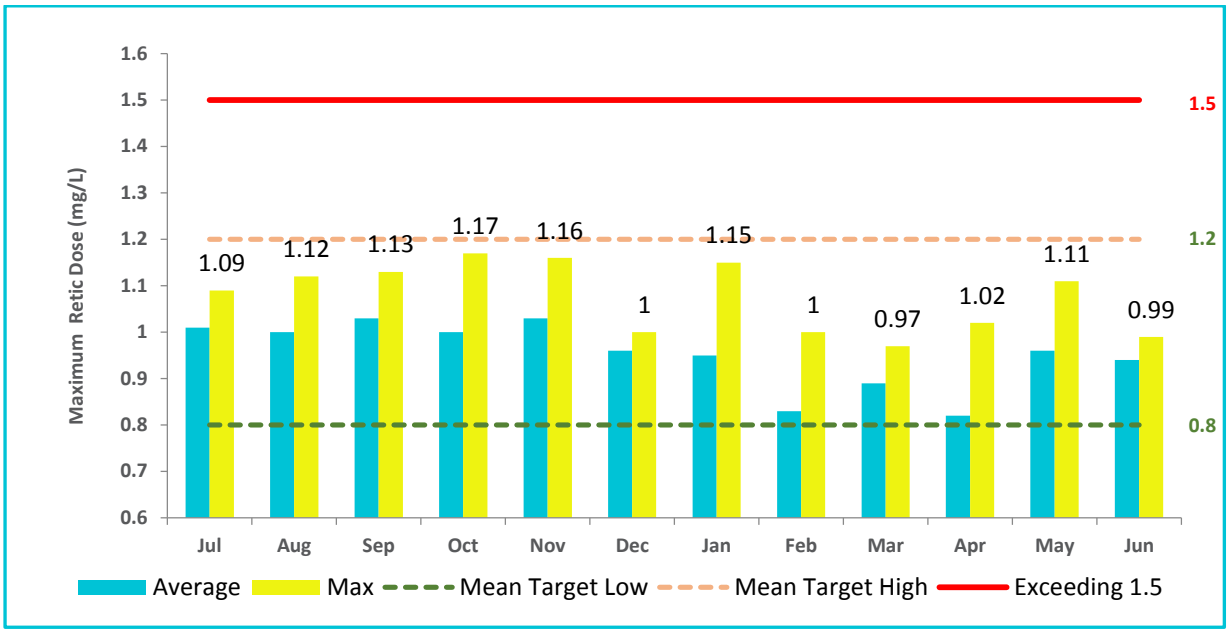


Figure 6.07.4-b Average reticulation fluoride dose by month (2016-17)

Table 6.07.4-a Metals performance 2016-17

Metals – health regulated parameters (2016–17)								
Parameter	**Limit**	**Unit**	**Samples**	**Exceedances**	**Performance %**	**Mean**	**Min.**	**Max.**
Antimony	0.003	mg/L	4	0	100	<0.0005	<0.0005	<0.0005
Arsenic	0.01	mg/L	4	0	100	0.0005	<0.0003	<0.001
Barium	2	mg/L	4	0	100	0.015	0.0127	0.0169
Cadmium	0.002	mg/L	4	0	100	<0.0001	<0.0001	<0.0001
Chromium	0.05	mg/L	4	0	100	0.0003	<0.0001	<0.001
Copper	2	mg/L	4	0	100	0.0044	0.0031	0.005
Lead	0.01	mg/L	4	0	100	0.0003	0.0001	<0.0005
Manganese	0.5	mg/L	4	0	100	0.0151	0.0058	0.0284
Mercury	0.001	mg/L	4	0	100	0.00013	<0.00005	0.00028
Molybdenum	0.05	mg/L	4	0	100	0.0002	<0.0001	<0.0005
Nickel	0.02	mg/L	4	0	100	0.0003	<0.0001	0.0005
Selenium	0.01	mg/L	4	0	100	0.0006	<0.0001	<0.002

Table 6.07.4-b Disinfection by product performance 2016-17

Disinfection by products – health regulated parameters (2016–17)								
Parameter	Limit	Unit	Samples	Exceedances	Performance %	Mean	Min.	Max.
Dichloroacetic acid	100	µg/L	4	0	100	12.25	8	20
Monochloroacetic acid	150	µg/L	4	0	100	<5	<3	<5
Trichloroacetic acid	100	µg/L	4	0	100	13.25	8	20
Total trihalomethanes	250	µg/L	4	0	100	68.75	53	89

6.07.5. Analysis of overall system performance (2016-17)

Table 6.07.5-a General physical performance 2016-17

General physical parameters (2016-17)					
Parameter	Unit	Guideline Value	Mean	Min	Max
Chlorine residual	mg/L	0.1 - <0.8	0.39	0.01	1.29
Colour True	HU	15	<1	<1	<1
pH	Units	6.5 – 8.5	6.79	5.89	7.71
Turbidity	NTU	1	0.57	0.21	6.60

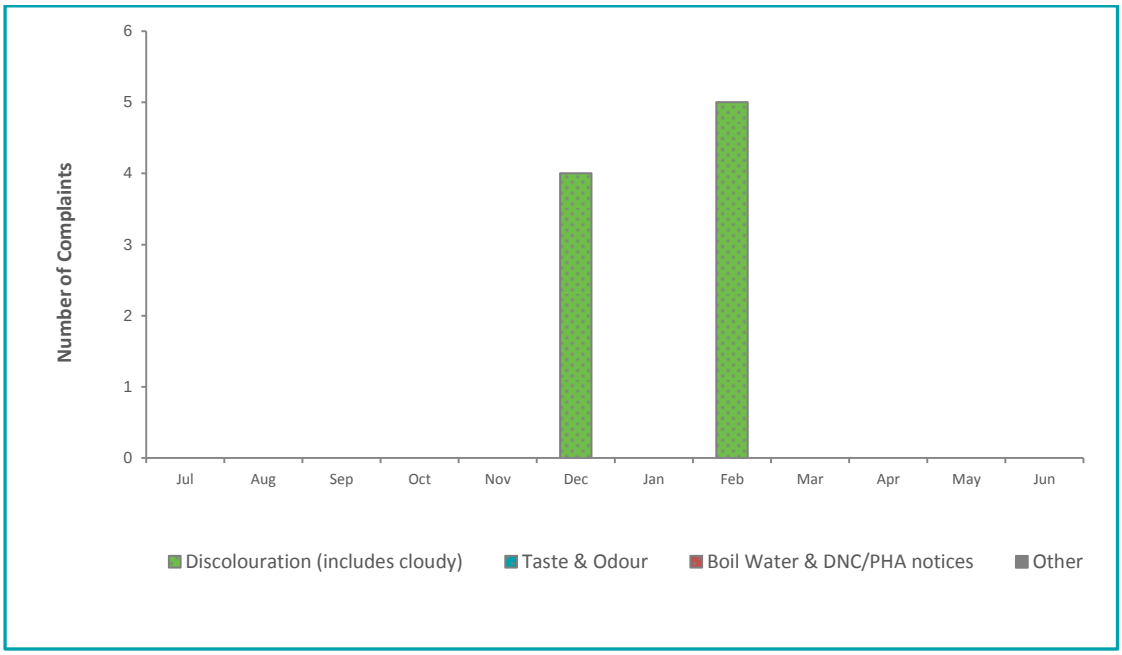


Figure 6.07.5-a Customer complaints by month and type

6.08. Bronte Park drinking water system

6.08.1. System summary (2016-17)

Bronte Park drinking water system	
System status (as at 30 June 2017)	BWA
Total number of connections	61
Fluoride	n/a

Performance overview against health targets (2016-17)

Indicator	Outcome	Compliant	Target	Sampling Events	Non-conformances
Microbiological	80.8%	☒	98.0%	52	10
Fluoride	n/a	n/a	n/a	n/a	n/a
Metals	100.0%	☑	100.0%	18	0
DBPs	93.1%	☒	100.0%	18	6

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

Overall system performance (2016-17)

Indicator	Occurrences	Details
Customer complaints	0	
Public health warnings issued	1	Ongoing water quality issues due to inadequate treatment barriers.
System incidents & issues	16	E. coli and DBP exceedances
Catchment and water source issues	0	

Current and future planned infrastructure and operational changes

Project	Description	Progress	Est. Delivery	Est. Spend
Bronte Park water supply system	Treated water supply to the community.	Tender	FY17/18	$2,270.02

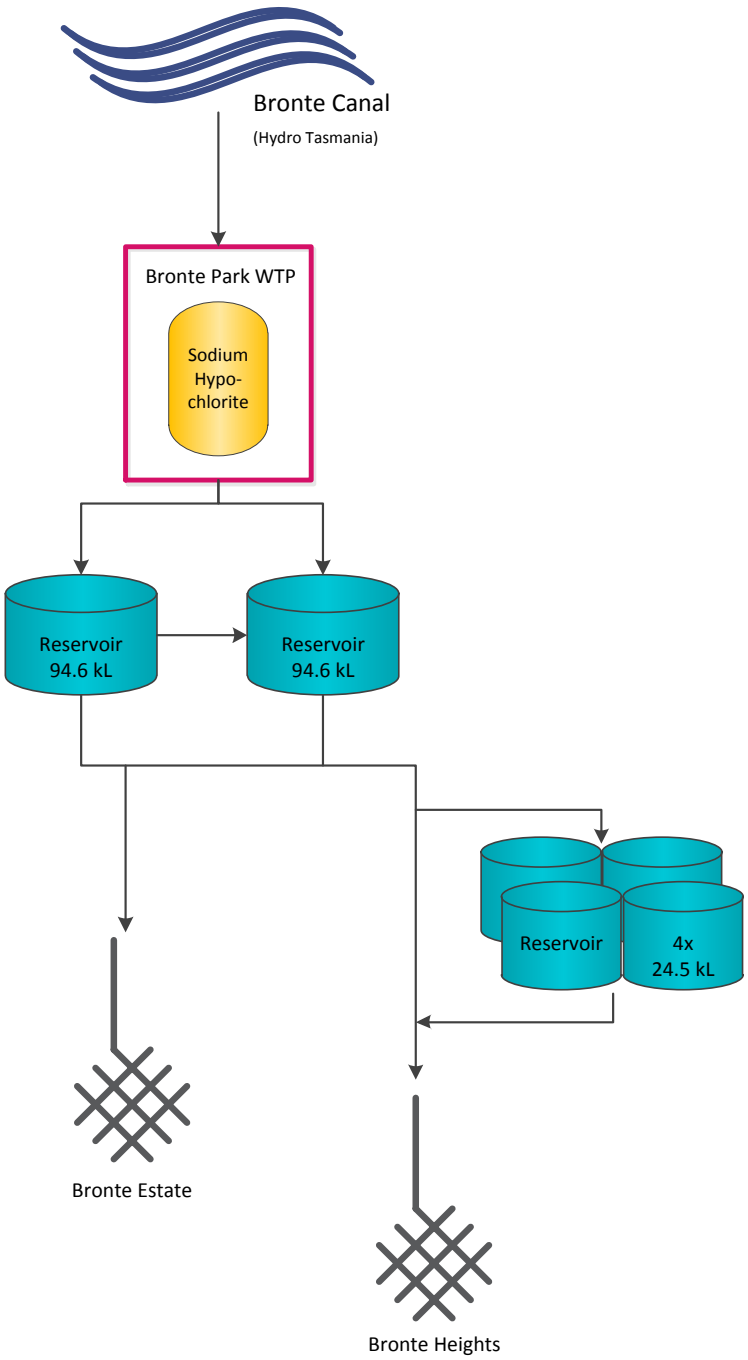


Figure 6.08.1-a Bronte Park system schematic

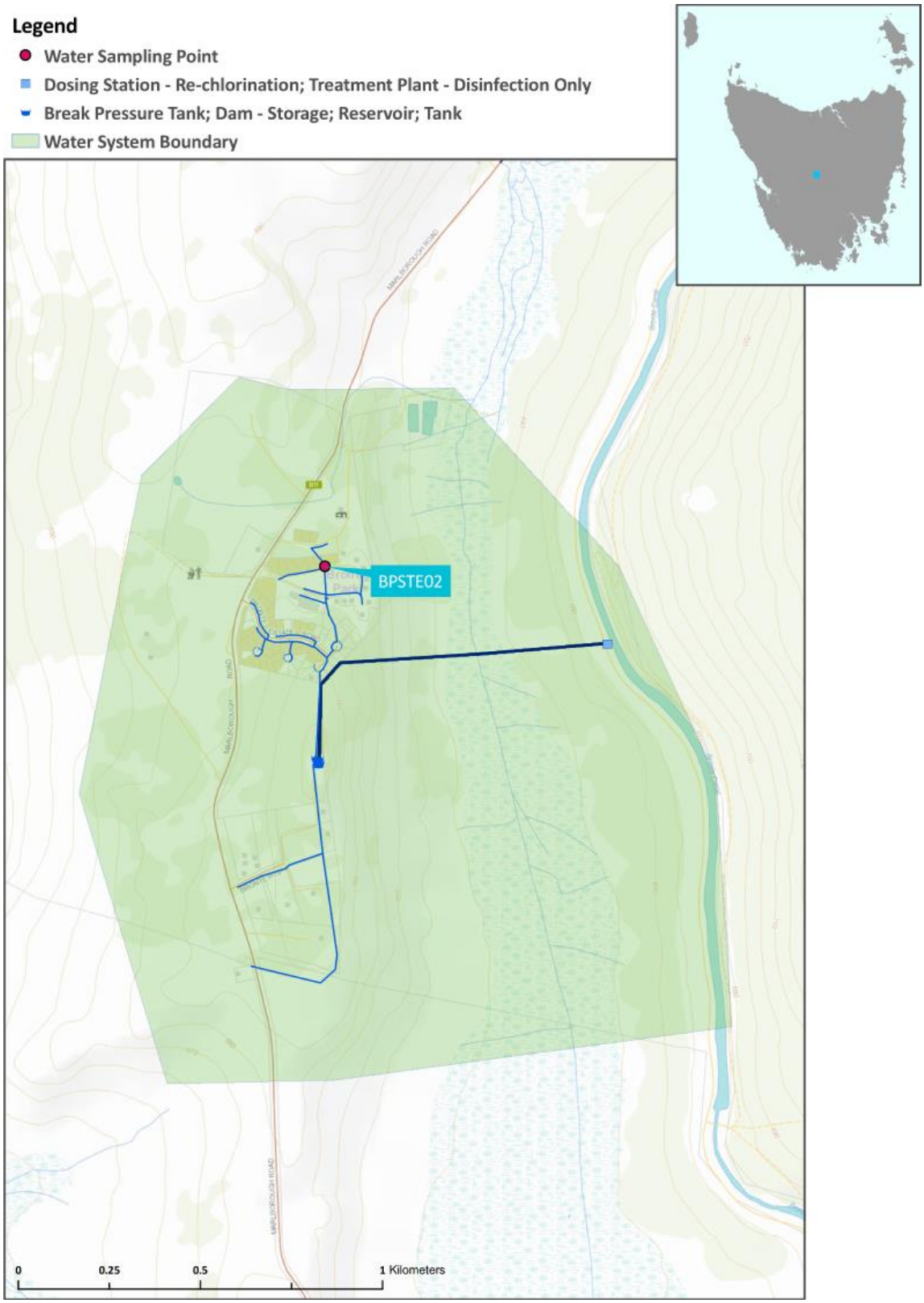


Figure 6.08.1-b Map of Bronte Park monitoring system

6.08.2. Summary of Annual Reticulation Compliance (2016–17)

Table 6.08.2-a Compliance sampling program

Planned compliance sampling program (2016-17)								
Site name	Site Code	Micros	Metals	DBP	Fluoride (Field)	Fluoride (Lab)	Chemical Profile	Process Chemicals
Bronte Park/Retic Site - toilet block near chalet	BPSTE02	W	Q	Q	n/a	n/a	Q	n/a
Number Planned Samples		**52**	**18**	**18**	**0**	**0**	**18**	**0**
Number Samples Tested		**52**	**18**	**18**	**0**	**0**	**18**	**0**

- Under TasWater ownership from 1 August 2016
- Risk assessment identified potential risks to public health based on current standards
- To obtain background data for new system, metals, DBP and chemical testing was performed weekly until October 2016 and then reduced to program above.

6.08.3. Summary of current and historic performance (2012-17)

Table 6.08.3-a Historical health performance overview (5 year comparison)

Historical health performance overview (5 year comparison)					
Indicator	2012-13	2013-14	2014-15	2015-16	2016-17
Microbiological	n/a	n/a	n/a	n/a	80.8%
Fluoride	n/a	n/a	n/a	n/a	n/a
Metals	n/a	n/a	n/a	n/a	100%
Disinfection by products	n/a	n/a	n/a	n/a	91.7%

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

6.08.4. Analysis of current health performance (2016-17)

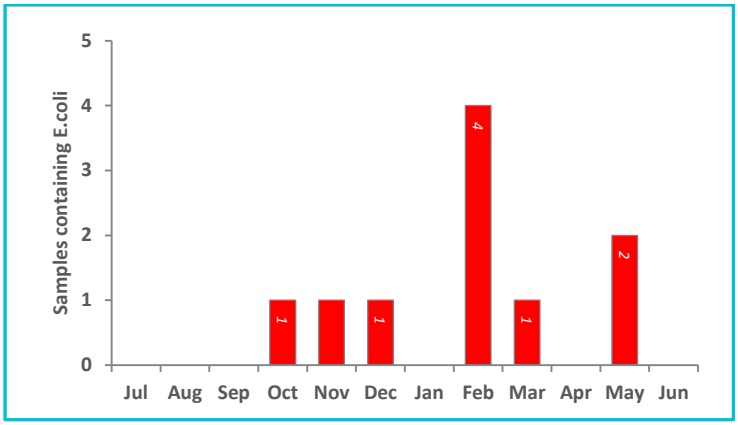


Figure 6.08.4-a Microbiological non-compliances by month (2016-17)

- Poor microbiological performance can be attributed to a lack of barriers and the susceptibility to changes in quality from the Bronte Canal.
- The risk to public health is mitigated through the communication of the Permanent BWA to customers.

Table 6.08.4-a Metals performance 2016-17

Metals – health regulated parameters (2016–17)								
Parameter	Limit	Unit	Samples	Exceedances	Performance %	Mean	Min.	Max.
Antimony	0.003	mg/L	18	0	100	<0.0005	<0.0005	<0.0005
Arsenic	0.01	mg/L	18	0	100	0.0009	<0.0003	<0.001
Barium	2	mg/L	18	0	100	0.001	0.0006	0.001
Cadmium	0.002	mg/L	18	0	100	<0.0001	<0.0001	<0.0001
Chromium	0.05	mg/L	18	0	100	0.0009	<0.0001	<0.001
Copper	2	mg/L	18	0	100	0.0024	0.001	0.005
Lead	0.01	mg/L	18	0	100	0.0004	0.0001	<0.0005
Manganese	0.5	mg/L	18	0	100	0.0064	0.001	0.0406
Mercury	0.001	mg/L	18	0	100	0.00005	0.00004	0.00008
Molybdenum	0.05	mg/L	18	0	100	0.0007	<0.0001	0.0045
Nickel	0.02	mg/L	18	0	100	0.0004	<0.0001	<0.0005
Selenium	0.01	mg/L	18	0	100	0.0017	<0.0001	<0.002

Table 6.08.4-b Disinfection by product performance 2016-17

Disinfection by products – health regulated parameters (2016–17)								
Parameter	**Limit**	**Unit**	**Samples**	**Exceedances**	**Performance %**	**Mean**	**Min.**	**Max.**
Dichloroacetic acid	100	µg/L	18	0	100	40.97	<1	80
Monochloroacetic acid	150	µg/L	18	0	100	<5	<3	<5
Trichloroacetic acid	100	µg/L	18	5#	67	72.22	<1	190
Total trihalomethanes	250	µg/L	18	0	100	52.28	<4	85

- # DBPs were detected above the ADWG health limits in July and August 2016. Due to a lack of filtration barriers, precursors to DBPs such as organic matter are not removed. Chlorine residuals are maintained to provide disinfection.

6.08.5. Analysis of overall system performance (2016-17)

Table 6.08.5-a General physical performance 2016-17

General physical parameters (2016-17)					
Parameter	**Unit**	**Guideline Value**	**Mean**	**Min**	**Max**
Chlorine residual	mg/L	0.1 - <0.8	0.32	0.0	1.92
Colour True	HU	15	8	6	12
pH	Units	6.5 – 8.5	7.27	6.81	7.81
Turbidity	NTU	1	0.96	0.38	2.52

6.09. Cam River drinking water system

6.09.1. System summary (2016-17)

Cam River drinking water system	
System status (as at 30 June 2017)	Potable
Total number of connections	4520
Fluoride	Fluorosilicic acid

Performance overview against health targets (2016-17)

Indicator	Outcome	Compliant	Target	Sampling Events	Non-conformances
Microbiological	100.0%	☑	98.0%	363	0
Fluoride	100.0%	☑	100.0%	104	0
Metals	100.0%	☑	100.0%	20	0
DBPs	100.0%	☑	100.0%	8	0

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

Overall system performance (2016-17)

Indicator	Occurrences	Details
Customer complaints	27	Discoloured water, taste & odour.
Public health warnings issued	0	
System incidents & issues	0	
Catchment and water source issues	0	

Current and future planned infrastructure and operational changes

Project	Description	Progress	Est. Delivery	Est. Spend
n/a	n/a	n/a	n/a	n/a

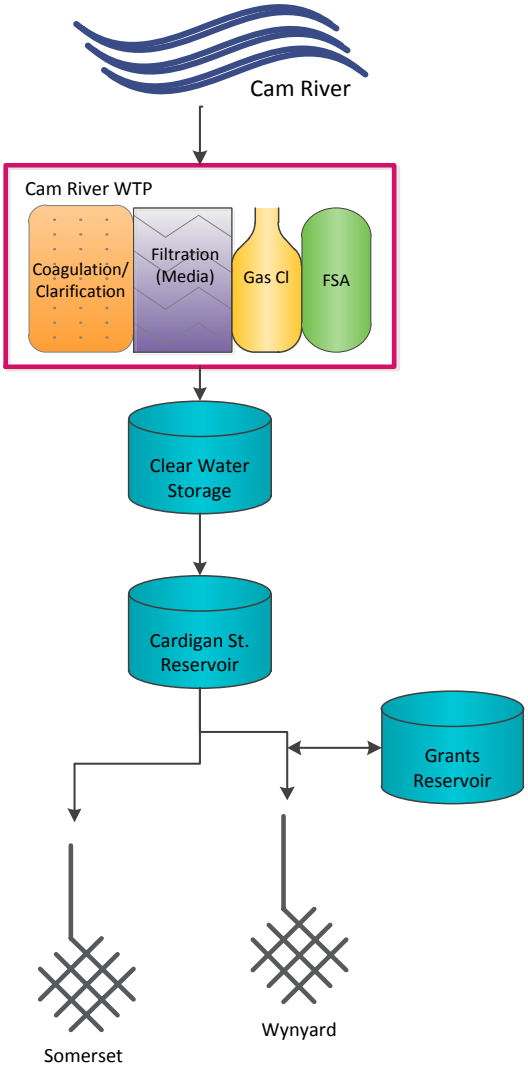


Figure 6.09.1-a Cam River system schematic

Figure 6.09.1-b Map of Cam River monitoring system

6.09.2. Summary of Annual Reticulation Compliance (2016–17)

Table 6.09.2-a Compliance sampling program

Planned compliance sampling program (2016-17)								
Site name	**Site Code**	**Micros**	**Metals**	**DBP**	**Fluoride (Field)**	**Fluoride (Lab)**	**Chemical Profile**	**Process Chemicals**
Somerset/Clear Water Outlet Sampling Point	03001SP0002	W	n/a	n/a	n/a	n/a	Q	M
Somerset/Big Cardigan Res Sampling Point	033SSSP0003	W	n/a	n/a	n/a	n/a	n/a	n/a
Somerset/Little Cardigan Res Sampling Point	033SSSP0004	W	n/a	n/a	n/a	n/a	n/a	n/a
Wynyard/Wynyard Grants Reservoir	033WYSP0002	W	n/a	n/a	n/a	n/a	n/a	n/a
Somerset/Murchison Highway Sampling Point	034SSSP0007	W	n/a	n/a	n/a	n/a	n/a	n/a
Somerset/Somerset Surf Club	034SSSP0008	W	Q	Q	W	M	n/a	M
Wynyard/Big Creek Sampling Point	034WYSP0002	W	Q	Q	W	n/a	Q	n/a
Number Planned Samples		**364**	**8**	**8**	**104**	**12**	**8**	**12**
Number Samples Tested		**363#**	**8**	**8**	**104**	**12**	**8**	**12***

- # One micro sample missed for site 033SSSP0003:Somerset/Big Cardigan Res Sampling Point due to it being offline.
- *Monthly Metals missing (except for Mercury) for May 2017 for site 03001SP0002 :Somerset/Clear Water Outlet Sampling Point due to sampling error.

6.09.3. Summary of current and historic performance (2012-17)

Table 6.09.3-a Historical health performance overview (5 year comparison)

Historical health performance overview (5 year comparison)					
Indicator	**2012-13**	**2013-14**	**2014-15**	**2015-16**	**2016-17**
Microbiological	99.8%	99.7%	99.7%	99.4%	100.0%
Fluoride	n/a	n/a	100.0%	100.0%	100.0%
Metals	n/a	100.0%	100.0%	100.0%	100.0%
Disinfection by products	n/a	100.0%	100.0%	100.0%	100.0%

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

Table 6.09.3-b Distribution fluoride testing overview (5 year comparison)

Distribution fluoride testing overview (5 year comparison)					
Indicator	**2012-13**	**2013-14**	**2014-15**	**2015-16**	**2016-17**
Exceeding 1.5 mg/L	n/a	n/a	0	0	**0**
Within target range (%)	n/a	n/a	91.1%	86.8%	76.9%
Mean dose (mg/L)	n/a	n/a	0.93	0.91	0.81

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

6.09.4. Analysis of current health performance (2016-17)

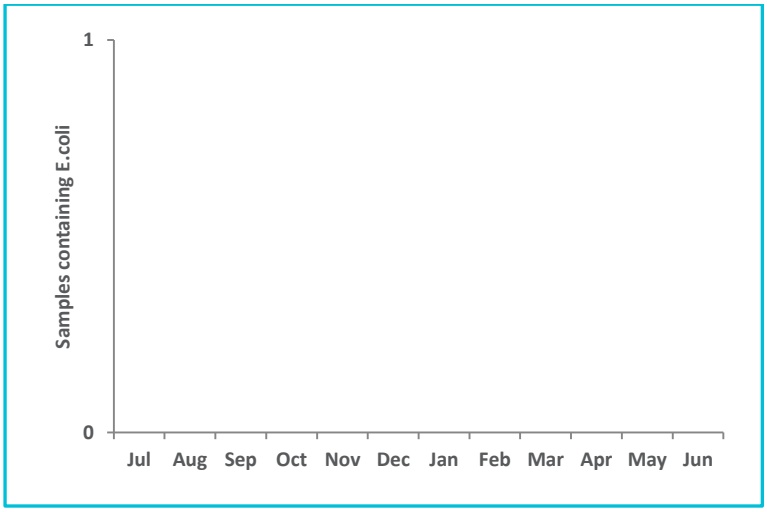


Figure 6.09.4-a Microbiological non-compliances by month (2016-17)

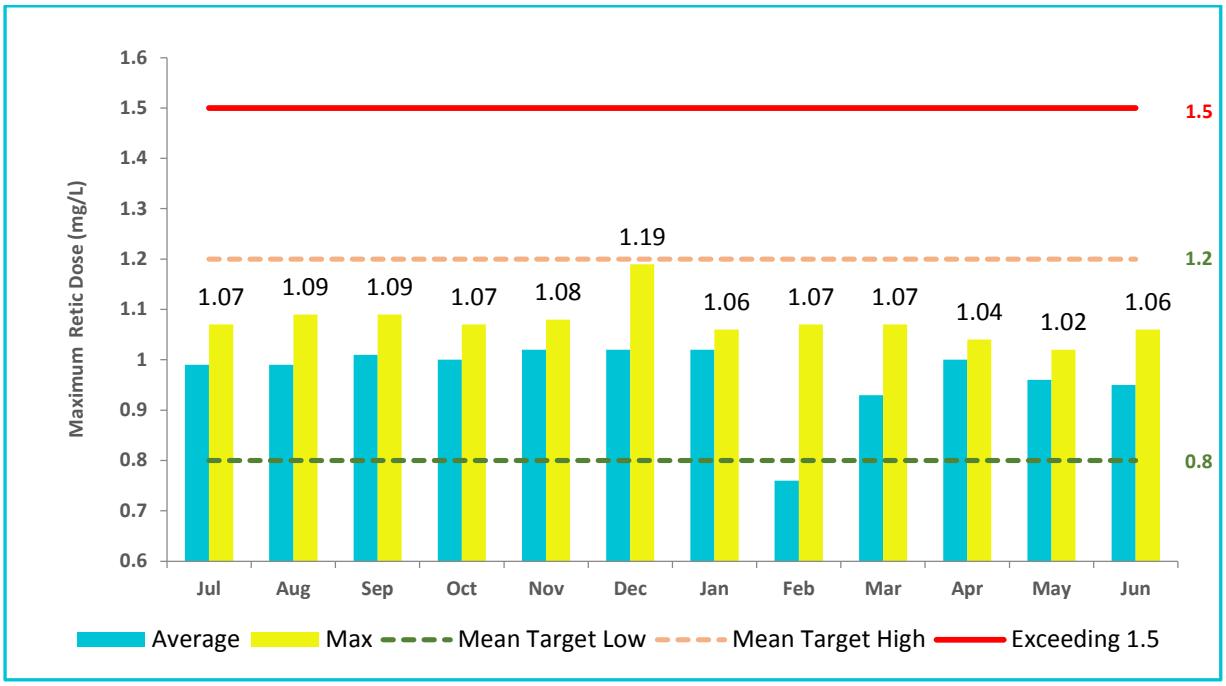


Figure 6.09.4-b Average reticulation fluoride dose by month (2016-17)

Table 6.09.4-a Metals performance 2016-17

Metals – health regulated parameters (2016–17)								
Parameter	**Limit**	**Unit**	**Samples**	**Exceedances**	**Performance %**	**Mean**	**Min.**	**Max.**
Antimony	0.003	mg/L	8	0	100	<0.0005	<0.0005	<0.0005
Arsenic	0.01	mg/L	19	0	100	0.0007	<0.0003	0.0015
Barium	2	mg/L	19	0	100	0.0069	0.0033	0.0109
Cadmium	0.002	mg/L	19	0	100	<0.0001	<0.0001	<0.0001
Chromium	0.05	mg/L	19	0	100	0.0006	<0.0001	<0.001
Copper	2	mg/L	8	0	100	0.0018	0.0002	0.005
Lead	0.01	mg/L	19	0	100	0.0003	<0.0001	<0.0005
Manganese	0.5	mg/L	19	0	100	0.0068	<0.001	0.0203
Mercury	0.001	mg/L	20	0	100	0.00007	<0.00003	0.00014
Molybdenum	0.05	mg/L	8	0	100	0.0003	<0.0001	<0.0005
Nickel	0.02	mg/L	19	0	100	0.001	<0.0001	0.0026
Selenium	0.01	mg/L	19	0	100	0.001	<0.0001	<0.002

- *Monthly Metals missing (except for Mercury) for May 2017 for site 03001SP0002: Somerset/Clear Water Outlet Sampling Point due to sampling error.

Table 6.09.4-b Disinfection by product performance 2016-17

Disinfection by products – health regulated parameters (2016–17)								
Parameter	**Limit**	**Unit**	**Samples**	**Exceedances**	**Performance %**	**Mean**	**Min.**	**Max.**
Dichloroacetic acid	100	µg/L	8	0	100	6	2	12
Monochloroacetic acid	150	µg/L	8	0	100	<5	<3	<5
Trichloroacetic acid	100	µg/L	8	0	100	6.5	2	12
Total trihalomethanes	250	µg/L	8	0	100	40.75	20	56

6.09.5. Analysis of overall system performance (2016-17)

Table 6.09.5-a General physical performance 2016-17

General physical parameters (2016-17)					
Parameter	**Unit**	**Guideline Value**	**Mean**	**Min**	**Max**
Chlorine residual	mg/L	0.1 - <0.8	0.73	0.14	1.81
Colour True	HU	15	<1	<1	2
pH	Units	6.5 – 8.5	7.31	7.0	7.79
Turbidity	NTU	1	0.3	0.14	0.91

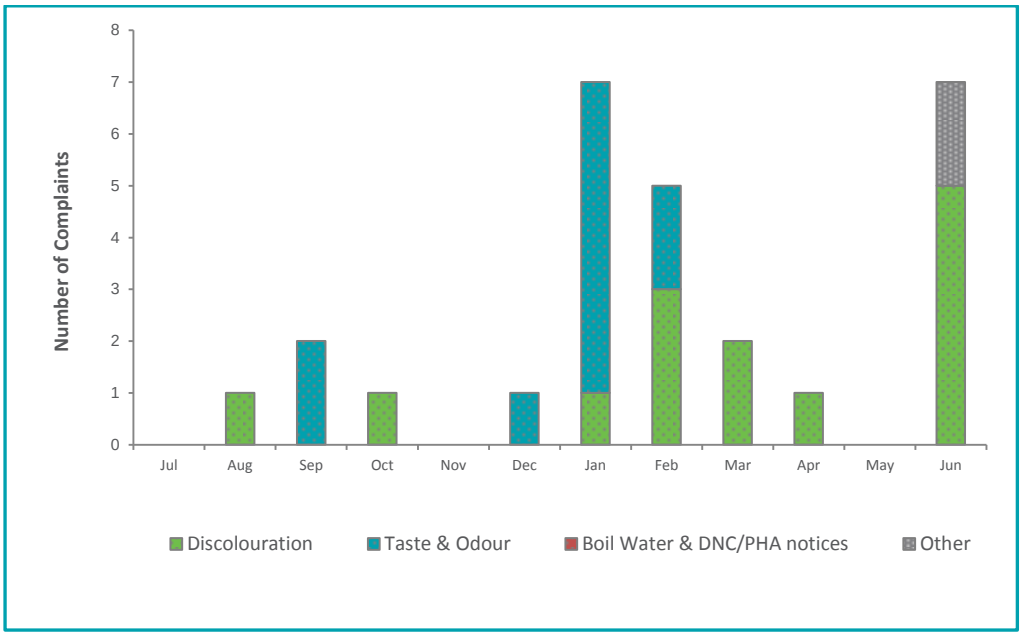


Figure 6.09.5-a Customer complaints by month and type

6.10. Campbell Town drinking water system

6.10.1. System summary (2016-17)

Campbell Town drinking water system	
System status (as at 30 June 2017)	Potable
Total number of connections	886
Fluoride	Sodium fluoride

Performance overview against health targets (2016-17)

Indicator	Outcome	Compliant	Target	Sampling Events	Non-conformances
Microbiological	100.0%	☑	98.0%	104	0
Fluoride	100.0%	☑	100.0%	104	0
Metals	100.0%	☑	100.0%	4	0
DBPs	100.0%	☑	100.0%	4	0

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

Overall system performance (2016-17)

Indicator	Occurrences	Details
Customer complaints	6	Discoloured water, taste & odour.
Public health warnings issued	0	
System incidents & issues	0	
Catchment and water source issues	1	Trace levels of pesticides were collected in the catchment. All results were well below the ADWG health limits.

Current and future planned infrastructure and operational changes

Project	Description	Progress	Est. Delivery	Est. Spend
Reservoir roofing	Cover both of the existing reservoirs	Construction	2016-17	TBD

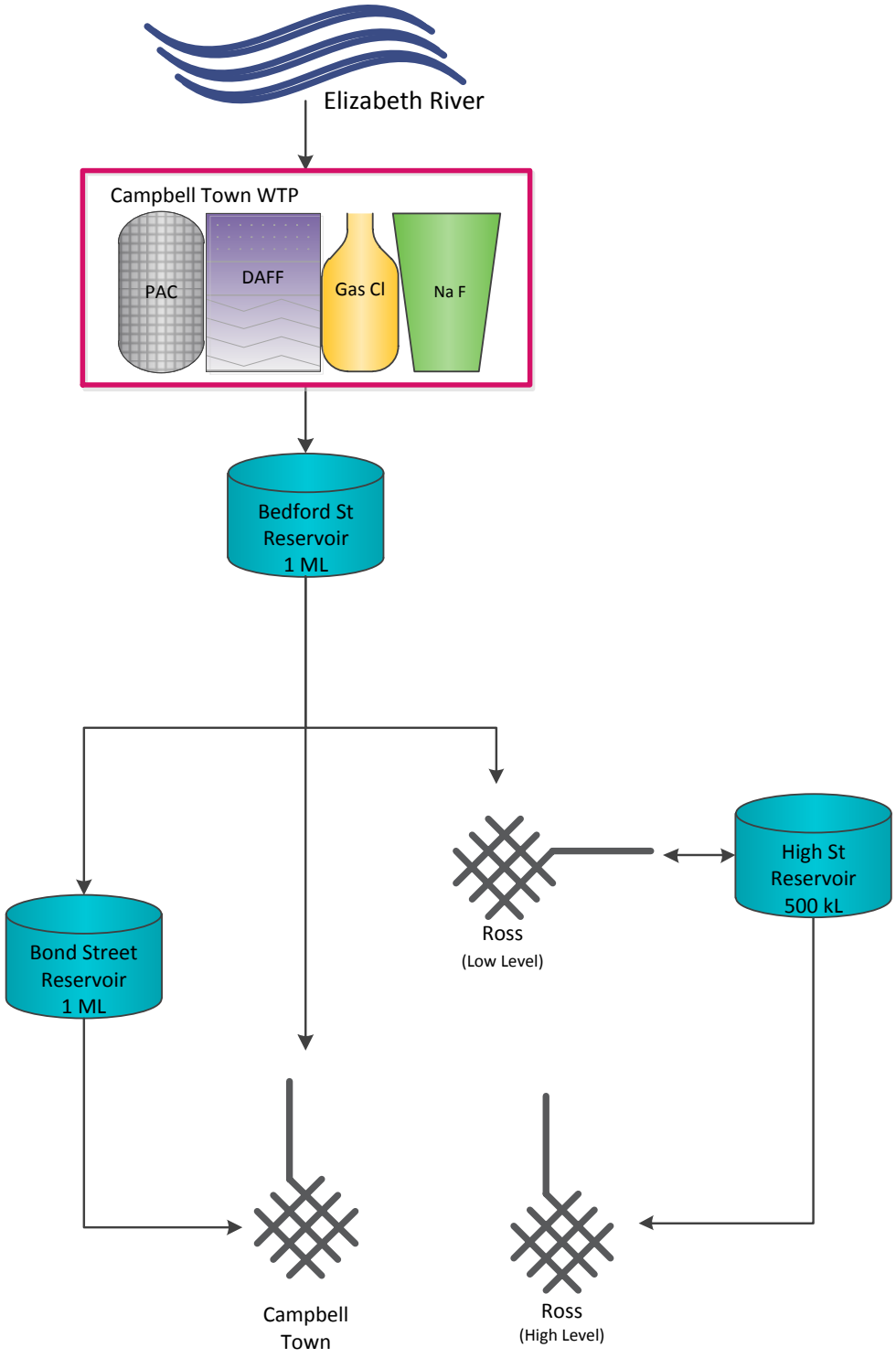


Figure 6.10.1-a Campbell Town system schematic

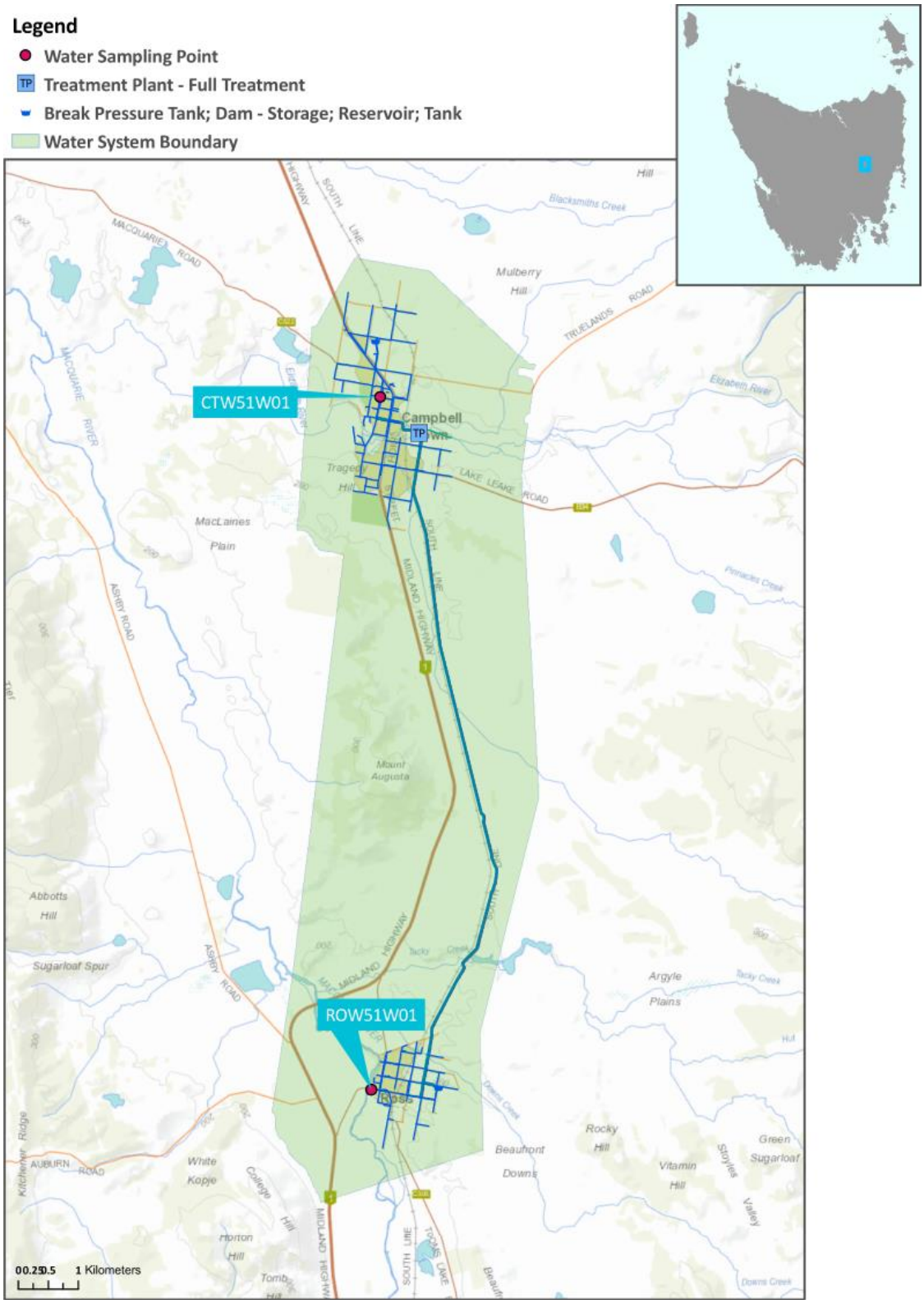


Figure 6.10.1-b Map of Campbell Town monitoring system

6.10.2. Summary of Annual Reticulation Compliance (2016–17)

Table 6.10.2-a Compliance sampling program

Planned compliance sampling program (2016-17)								
Site name	Site Code	Micros	Metals	DBP	Fluoride (Field)	Fluoride (Lab)	Chemical Profile	Process Chemicals
Campbell Town/Cnr Bridge St & Hamilton St	CTW51W01	W	n/a	n/a	W	M	n/a	n/a
Ross/ Bridge St SPS	ROW51W01	W	Q	Q	W	n/a	Q	n/a
Number Planned Samples		**104**	**4**	**4**	**104**	**12**	**4**	**0**
Number Samples Tested		**104**	**4**	**4**	**104**	**12**	**4**	**0**

6.10.3. Summary of current and historic performance (2012-17)

Table 6.10.3-a Historical health performance overview (5 year comparison)

Historical health performance overview (5 year comparison)					
Indicator	2012-13	2013-14	2014-15	2015-16	2016-17
Microbiological	100.0%	100.0%	100.0%	100.0%	100.0%
Fluoride	100.0%	100.0%	100.0%	100.0%	100.0%
Metals	100.0%	100.0%	100.0%	100.0%	100.0%
Disinfection by products	100.0%	100.0%	100.0%	100.0%	100.0%

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

Table 6.10.3-b Distribution fluoride testing overview (5 year comparison)

Distribution fluoride testing overview (5 year comparison)					
Indicator	**2012-13**	**2013-14**	**2014-15**	**2015-16**	**2016-17**
Exceeding 1.5 mg/L	0	0	0	0	0
Within target range (%)	n/a	n/a	98.0%	81.6%	90.4%
Mean dose (mg/L)	n/a	n/a	0.95	0.90	0.99

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

6.10.4. Analysis of current health performance (2016-17)

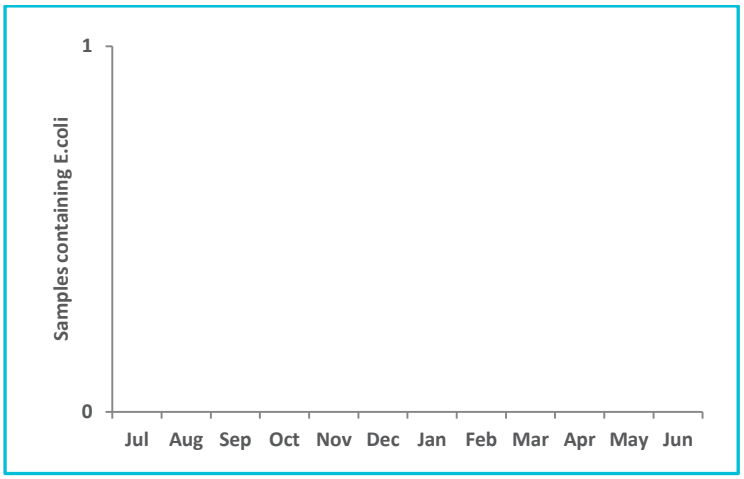


Figure 6.10.4-a Microbiological non-compliances by month (2016-17)

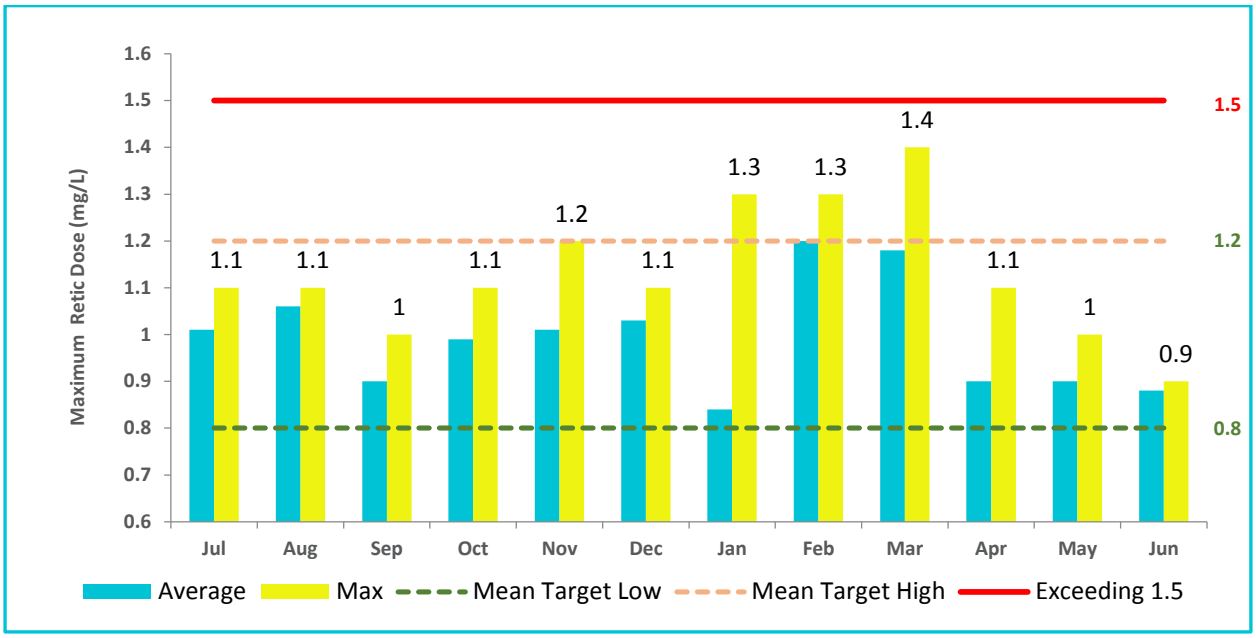


Figure 6.10.4-b Average reticulation fluoride dose by month (2016-17)

Table 6.10.4-a Metals performance 2016-17

Metals – health regulated parameters (2016–17)								
Parameter	**Limit**	**Unit**	**Samples**	**Exceedances**	**Performance %**	**Mean**	**Min.**	**Max.**
Antimony	0.003	mg/L	4	0	100	<0.0005	<0.0005	<0.0005
Arsenic	0.01	mg/L	4	0	100	0.0005	<0.0003	<0.001
Barium	2	mg/L	4	0	100	0.0114	0.0066	0.018
Cadmium	0.002	mg/L	4	0	100	0.0001	<0.0001	0.0001
Chromium	0.05	mg/L	4	0	100	0.0003	<0.0001	<0.001
Copper	2	mg/L	4	0	100	0.0052	0.004	0.0065
Lead	0.01	mg/L	4	0	100	0.0004	0.0003	0.0005
Manganese	0.5	mg/L	4	0	100	0.0019	0.0007	0.003
Mercury	0.001	mg/L	4	0	100	0.00007	<0.00005	0.00009
Molybdenum	0.05	mg/L	4	0	100	0.0002	<0.0001	<0.0005
Nickel	0.02	mg/L	4	0	100	0.0003	<0.0001	<0.0005
Selenium	0.01	mg/L	4	0	100	0.0006	<0.0001	<0.002

Table 6.10.4-b Disinfection by product performance 2016-17

Disinfection by products – health regulated parameters (2016–17)								
Parameter	Limit	Unit	Samples	Exceedances	Performance %	Mean	Min.	Max.
Dichloroacetic acid	100	µg/L	4	0	100	14	8	20
Monochloroacetic acid	150	µg/L	4	0	100	<5	<3	<5
Trichloroacetic acid	100	µg/L	4	0	100	17.25	9	25
Total trihalomethanes	250	µg/L	4	0	100	89	69	120

6.10.5. Analysis of overall system performance (2016-17)

Table 6.10.5-a General physical performance 2016-17

General physical parameters (2016-17)					
Parameter	Unit	Guideline Value	Mean	Min	Max
Chlorine residual	mg/L	0.1 - <0.8	0.72	0.05	1.25
Colour True	HU	15	<1	<1	<1
pH	Units	6.5 – 8.5	7.35	6.82	8.48
Turbidity	NTU	1	0.22	0.11	0.45

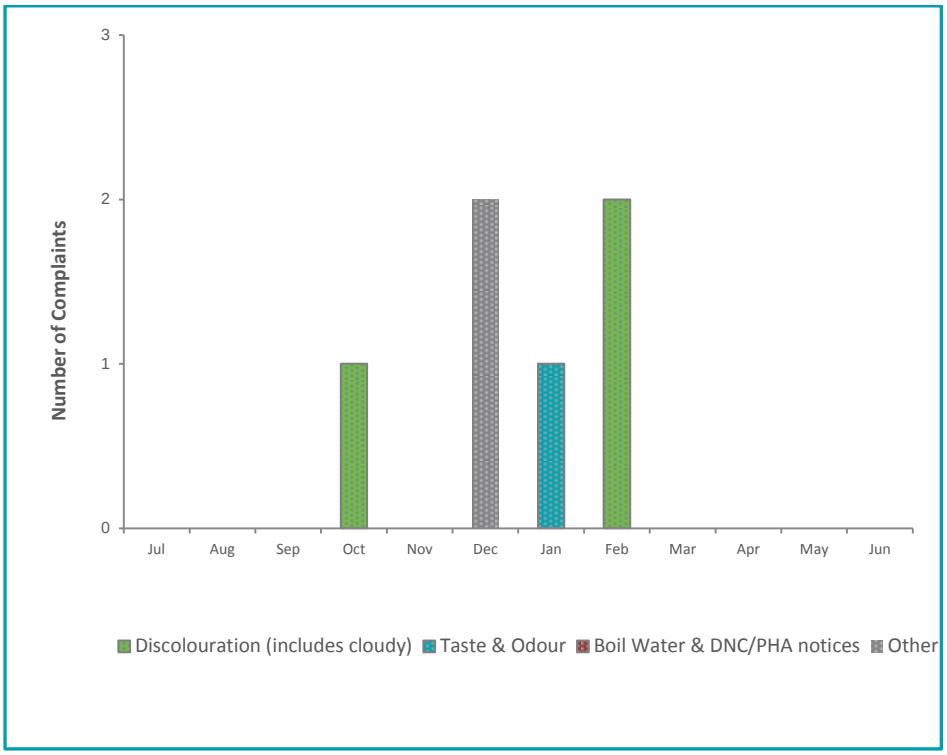


Figure 6.10.5-a Customer complaints by month and type

6.11. Colebrook drinking water system

6.11.1. Summary of system status

Colebrook drinking water system	
System status (as at 30 June 2017)	BWA
Total number of connections	107
Fluoride	n/a

Performance overview against health targets (2016-17)

Indicator	Outcome	Compliant	Target	Sampling Events	Non-conformances
Microbiological	100.0%	☑	98.0%	52	0
Fluoride	n/a	n/a	n/a	n/a	n/a
Metals	100.0%	☑	100.0%	4	0
DBPs	100.0%	☑	100.0%	12	0

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

Overall system performance (2016-17)

Indicator	Occurrences	Details
Customer complaints	10	Discoloured water, taste & odour, boil water & DNC alerts, other (illness from water).
Public health warnings issued	0	
System incidents & issues	0	
Catchment and water source issues	0	

Current and future planned infrastructure and operational changes

Project	Description	Progress	Est. Delivery	Est. Spend ($'000)
Colebrook water supply system	Treated Water supply to community.	Tender	FY17/18	$3,050.33

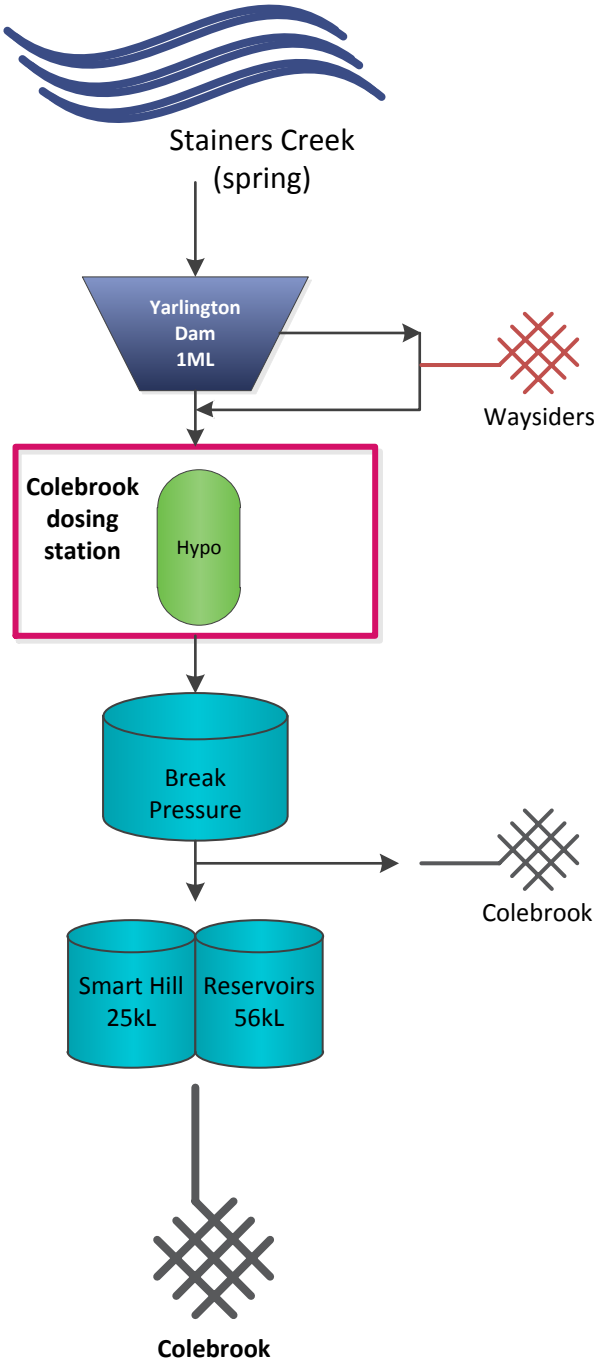


Figure 6.11.1-a Colebrook system schematic

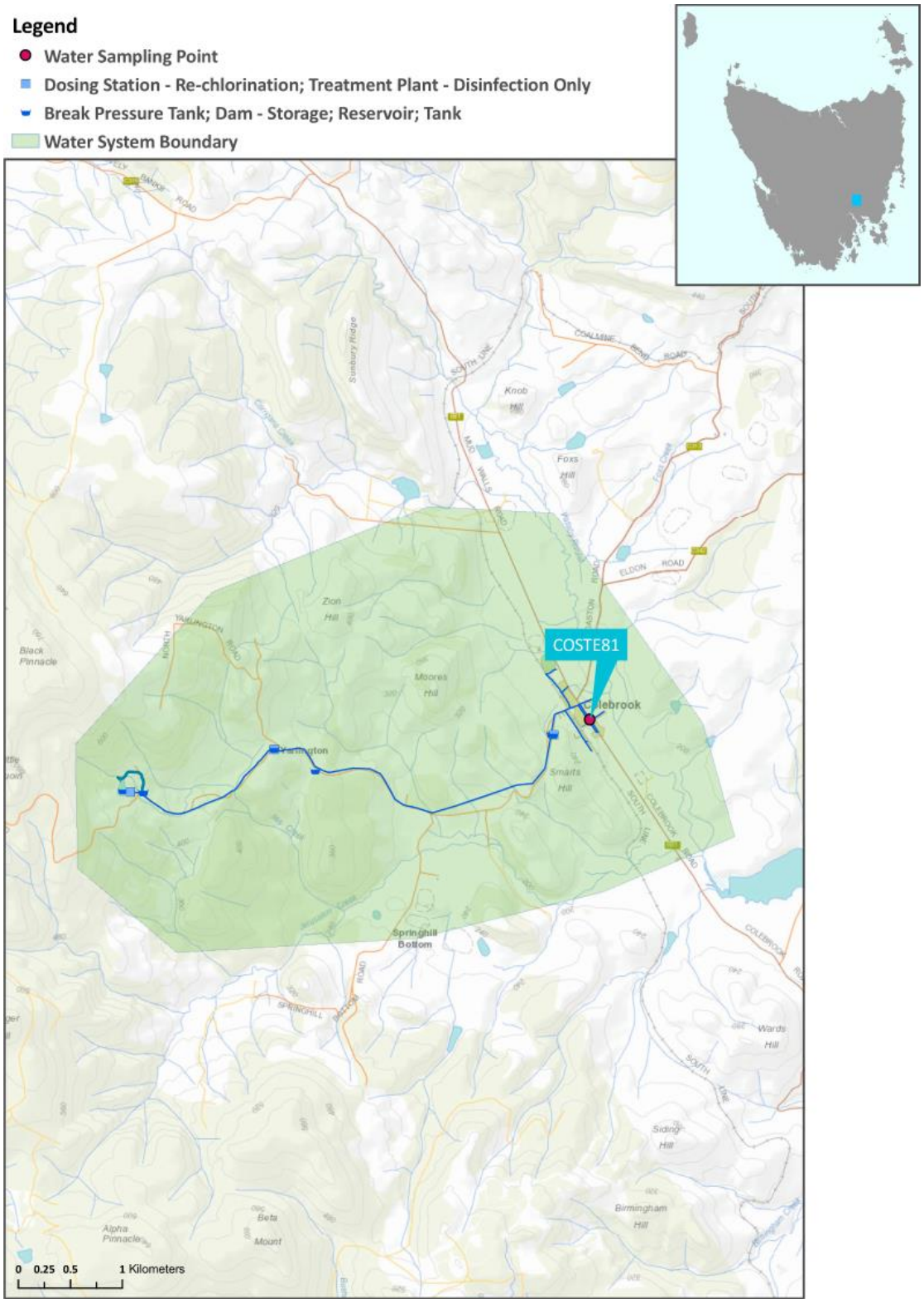


Figure 6.11.1-b Map of Colebrook monitoring system

6.11.2. Summary of Annual Reticulation Compliance (2016–17)

Table 6.11.2-a Compliance sampling program

Planned compliance sampling program (2016-17)								
Site name	Site Code	Micros	Metals	DBP	Fluoride (Field)	Fluoride (Lab)	Chemical Profile	Process Chemicals
Colebrook/Public Toilets, Sample Tap	COSTE81	W	Q	M	n/a	n/a	Q	n/a
Number Planned Samples		**52**	**4**	**12**	**0**	**0**	**4**	**0**
Number Samples Tested		**52**	**4**	**12**	**0**	**0**	**4**	**0**

6.11.3. Summary of current and historic performance (2012-17)

Table 6.11.3-a Historical health performance overview (5 year comparison)

Historical health performance overview (5 year comparison)					
Indicator	2012-13	2013-14	2014-15	2015-16	2016-17
Microbiological	98.0%	96.0%	98.1%	94.2%	100.0%
Fluoride	n/a	n/a	n/a	n/a	n/a
Metals	100.0%	100.0%	100.0%	100.0%	100.0%
Disinfection by products	78.0%	72.0%	62.8%	60.0%	100.0%

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

6.11.4. Analysis of current health performance (2016-17)

Figure 6.11.4-a Microbiological non-compliances by month (2016-17)

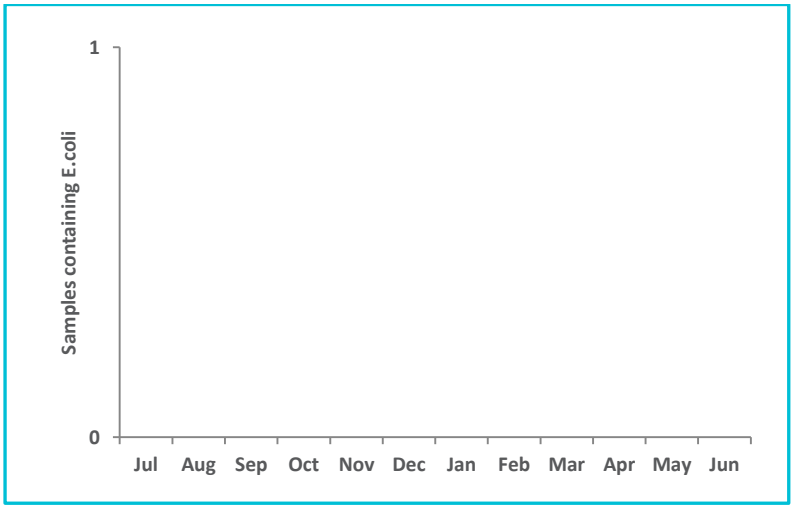


Table 6.11.4-a Metals performance 2016-17

Metals – health regulated parameters (2016–17)								
Parameter	Limit	Unit	Samples	Exceedances	Performance %	Mean	Min.	Max.
Antimony	0.003	mg/L	4	0	100	<0.0005	<0.0005	<0.0005
Arsenic	0.01	mg/L	4	0	100	0.0005	<0.0003	<0.001
Barium	2	mg/L	4	0	100	0.0069	0.0035	0.01
Cadmium	0.002	mg/L	4	0	100	<0.0001	<0.0001	<0.0001
Chromium	0.05	mg/L	4	0	100	0.0005	<0.0001	<0.001
Copper	2	mg/L	4	0	100	0.0092	0.0079	0.0105
Lead	0.01	mg/L	4	0	100	0.0004	0.0003	0.0005
Manganese	0.5	mg/L	4	0	100	0.0086	0.001	0.0135
Mercury	0.001	mg/L	4	0	100	0.00006	0.00003	0.00012
Molybdenum	0.05	mg/L	4	0	100	0.0002	<0.0001	<0.0005
Nickel	0.02	mg/L	4	0	100	0.0004	<0.0001	0.0005
Selenium	0.01	mg/L	4	0	100	0.0006	<0.0001	0.002

Table 6.11.4-b Disinfection by product performance 2016-17

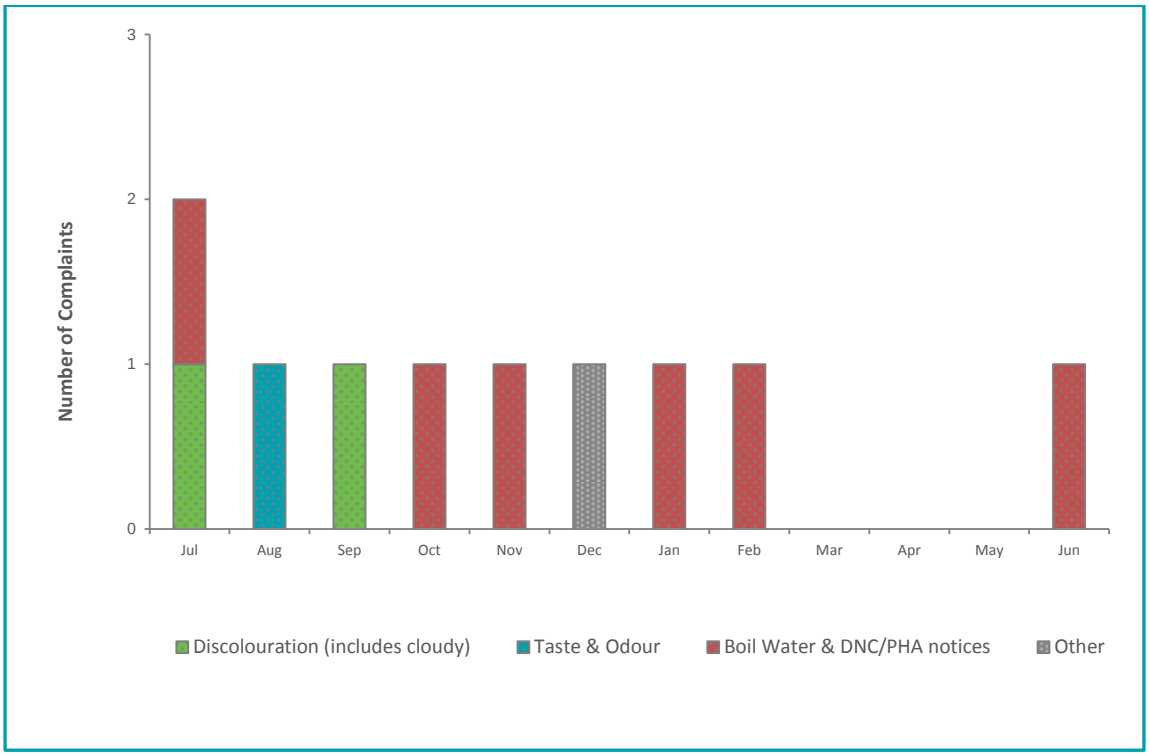
Disinfection by products – health regulated parameters (2016–17)								
Parameter	Limit	Unit	Samples	Exceedances	Performance %	Mean	Min.	Max.
Dichloroacetic acid	100	µg/L	12	0	100	13.33	<1	48
Monochloroacetic acid	150	µg/L	12	0	100	<5	<3	<5
Trichloroacetic acid	100	µg/L	12	0	100	18.83	<2	40
Total trihalomethanes	250	µg/L	12	0	100	67.97	3.6	162

6.11.5. Analysis of overall system performance (2016-17)

Table 6.11.5-a General physical performance 2016-17

General physical parameters (2016-17)					
Parameter	Unit	Guideline Value	Mean	Min	Max
Chlorine residual	mg/L	0.1 - <0.8	0.23	0.01	0.99
Colour True	HU	15	5.17	<1	9
pH	Units	6.5 – 8.5	7.4	6.67	8.59
Turbidity	NTU	1	3.44	0.20	55.4

Figure 6.11.5-a Customer complaints by month and type



6.12. Coles Bay drinking water system

6.12.1. Summary of system status

Coles Bay drinking water system	
System status (as at 30 June 2017)	Potable
Total number of connections	296
Fluoride	n/a

Performance overview against health targets (2016-17)

Indicator	Outcome	Compliant	Target	Sampling Events	Non-conformances
Microbiological	100.0%	☑	98.0%	52	0
Fluoride	n/a	n/a	n/a	n/a	n/a
Metals	100.0%	☑	100.0%	4	0
DBPs	90.0%	☒	100.0%	10	4

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

Overall system performance (2016-17)

Indicator	Occurrences	Details
Customer complaints	3	Discoloured water, taste & odour.
Public health warnings issued	0	
System incidents & issues	4	DBP exceedances.
Catchment and water source issues	0	

Current and future planned infrastructure and operational changes

Project	Description	Progress	Est. Delivery	Est. Spend
n/a	n/a	n/a	n/a	n/a

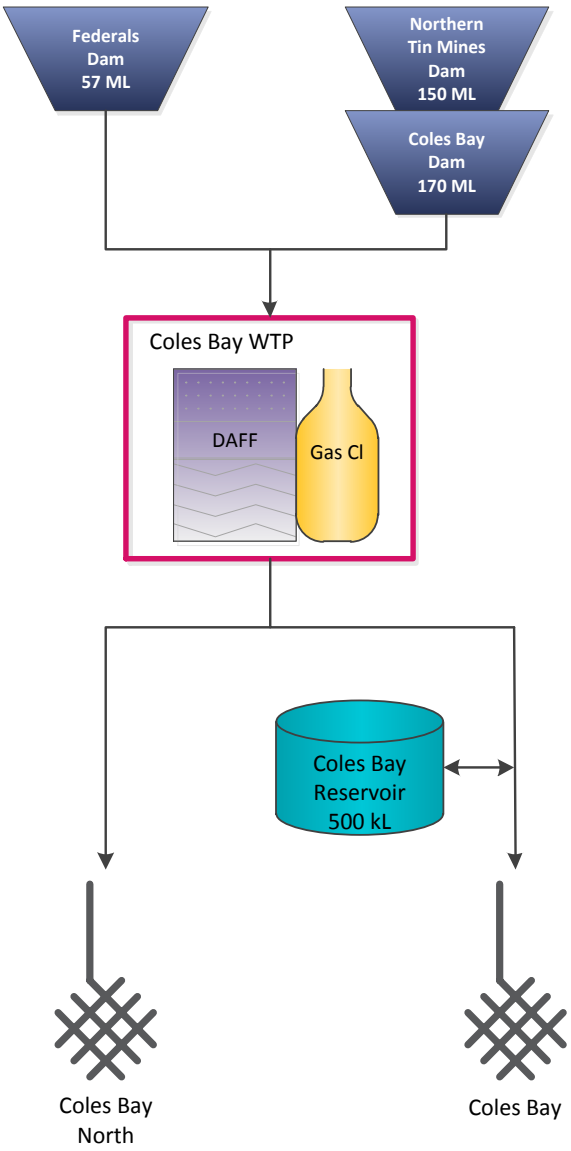


Figure 6.12.1-a Coles Bay system schematic

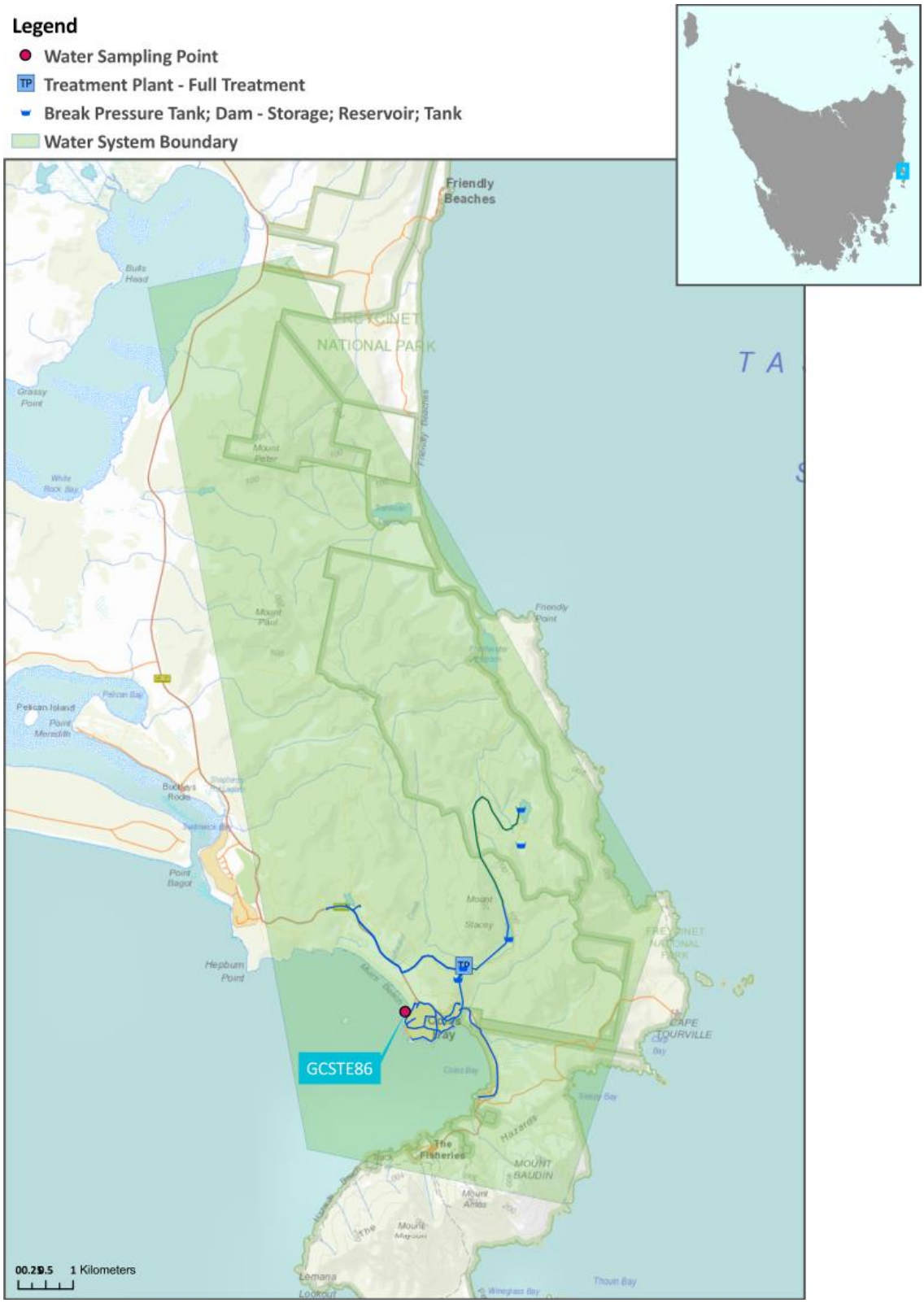


Figure 6.12.1-b Map of Coles Bay monitoring system

6.12.2. Summary of Annual Reticulation Compliance (2016–17)

Table 6.12.2-a Compliance sampling program

Planned compliance sampling program (2016-17)								
Site name	Site Code	Micros	Metals	DBP	Fluoride (Field)	Fluoride (Lab)	Chemical Profile	Process Chemicals
Coles Bay/Park Esp. NEW Sample Tap	GCSTE86	W	Q	M	n/a	n/a	Q	n/a
Number Planned Samples		**52**	**4**	**12**	**0**	**0**	**4**	**0**
Number Samples Tested		**52**	**4**	**10#**	**0**	**0**	**4**	**0**

- # DBP samples not collected December 2016 and January 2017 due to sampling error.

6.12.3. Summary of current and historic performance (2012-17)

Table 6.12.3-a Historical health performance overview (5 year comparison)

Historical health performance overview (5 year comparison)					
Indicator	2012-13	2013-14	2014-15	2015-16	2016-17
Microbiological	100.0%	99.5%	100.0%	100.0%	100.0%
Fluoride	n/a	n/a	n/a	n/a	n/a
Metals	100.0%	100.0%	100.0%	100.0%	100.0%
Disinfection by products	100.0%	100.0%	100.0%	94.0%	90.0%

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

6.12.4. Analysis of current health performance (2016-17)

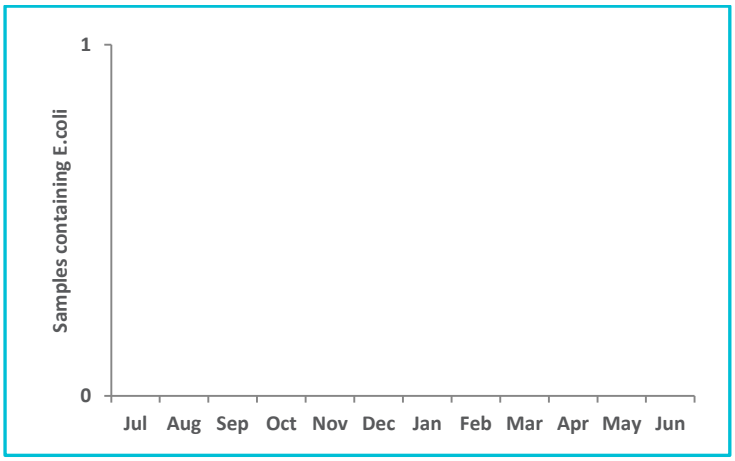


Figure 6.12.4-a Microbiological non-compliances by month (2016-17)

Table 6.12.4-a Metals performance 2016-17

Metals – health regulated parameters (2016–17)								
Parameter	**Limit**	**Unit**	**Samples**	**Exceedances**	**Performance %**	**Mean**	**Min.**	**Max.**
Antimony	0.003	mg/L	4	0	100	<0.0005	<0.0005	<0.0005
Arsenic	0.01	mg/L	4	0	100	0.0007	<0.0003	<0.001
Barium	2	mg/L	4	0	100	0.0032	0.0026	0.004
Cadmium	0.002	mg/L	4	0	100	<0.0001	<0.0001	<0.0001
Chromium	0.05	mg/L	4	0	100	0.0006	0.0001	<0.001
Copper	2	mg/L	4	0	100	0.0017	0.0007	0.0029
Lead	0.01	mg/L	4	0	100	0.0003	<0.0001	<0.0005
Manganese	0.5	mg/L	4	0	100	0.01	0.0008	0.0247
Mercury	0.001	mg/L	4	0	100	0.00006	<0.00003	0.00012
Molybdenum	0.05	mg/L	4	0	100	0.0003	<0.0001	<0.0005
Nickel	0.02	mg/L	4	0	100	0.0004	<0.0001	<0.0005
Selenium	0.01	mg/L	4	0	100	0.001	<0.0001	<0.002

Table 6.12.4-b Disinfection by product performance 2016-17

Disinfection by products – health regulated parameters (2016–17)								
Parameter	Limit	Unit	Samples	Exceedances	Performance %	Mean	Min.	Max.
Dichloroacetic acid	100	µg/L	10	0	100%	7.2	<1	39
Monochloroacetic acid	150	µg/L	10	0	100%	<3	<3	<5
Trichloroacetic acid	100	µg/L	10	0	100%	15.3	2	58
Total trihalomethanes	250	µg/L	10	4*	60%	209.3	100	357

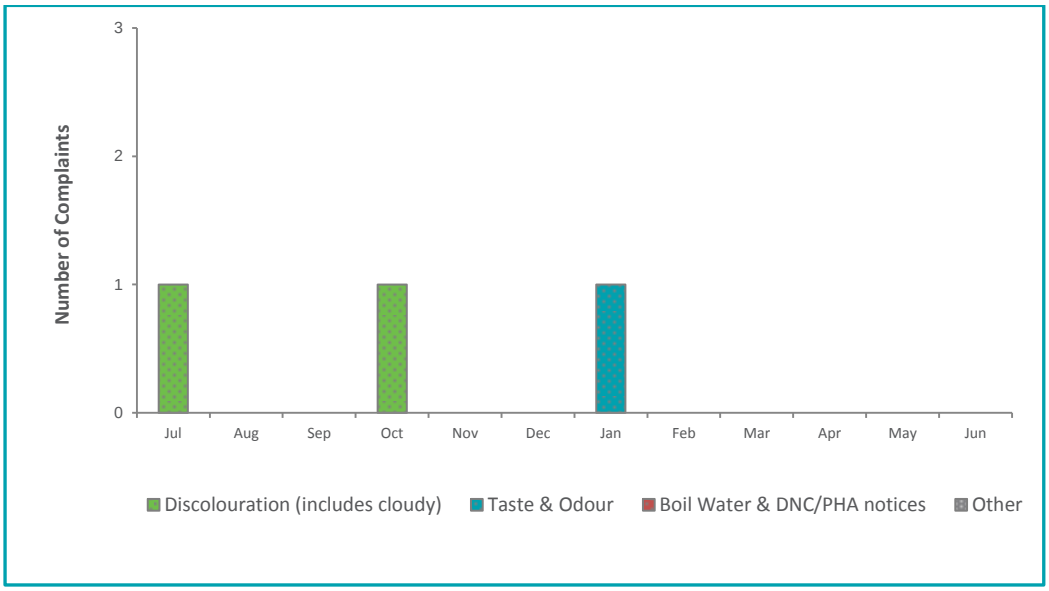
- # DBP samples not collected December 2016 and January 2017 due to sampling error.
- * DBPs were detected above the ADWG health limits in July 2016 and March, April and May 2017. Due to a lack of filtration barriers, precursors to DBPs such as organic matter are not removed. In accordance with the recommendation in the ADWG, chlorine residuals are maintained to provide appropriate disinfection.

6.12.5. Analysis of overall system performance (2016-17)

Table 6.12.5-a General physical performance 2016-17

General physical parameters (2016-17)					
Parameter	Unit	Guideline Value	Mean	Min	Max
Chlorine residual	mg/L	0.1 - <0.8	0.06	0.01	0.63
Colour True	HU	15	4.5	3	6
pH	Units	6.5 – 8.5	7.44	7.09	8.30
Turbidity	NTU	1	0.63	0.29	1.90

Figure 6.12.5-a Customer complaints by month and type



6.13. Conara drinking water system

6.13.1. Summary of system status

Conara drinking water system	
System status (as at 30 June 2017)	BWA
Total number of connections	46
Fluoride	n/a

Performance overview against health targets (2016-17)

Indicator	Outcome	Compliant	Target	Sampling Events	Non-conformances
Microbiological	100.0%	☑	98.0%	52	0
Fluoride	n/a	n/a	n/a	n/a	n/a
Metals	97.9%	☒	100.0%	4	1
DBPs	75.0%	☒	100.0%	4	4

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

Overall system performance (2016-17)

Indicator	Occurrences	Details
Customer complaints	0	
Public health warnings issued	0	BWA issued prior to FY2016-17
System incidents & issues	5	Metals and DBP exceedances.
Catchment and water source issues	0	

Current and future planned infrastructure and operational changes

Project	Description	Progress	Est. Delivery	Est. Spend ($'000)
Conara water supply system	Treated Water supply to the community.	Tender	FY17/18	$2,092.67

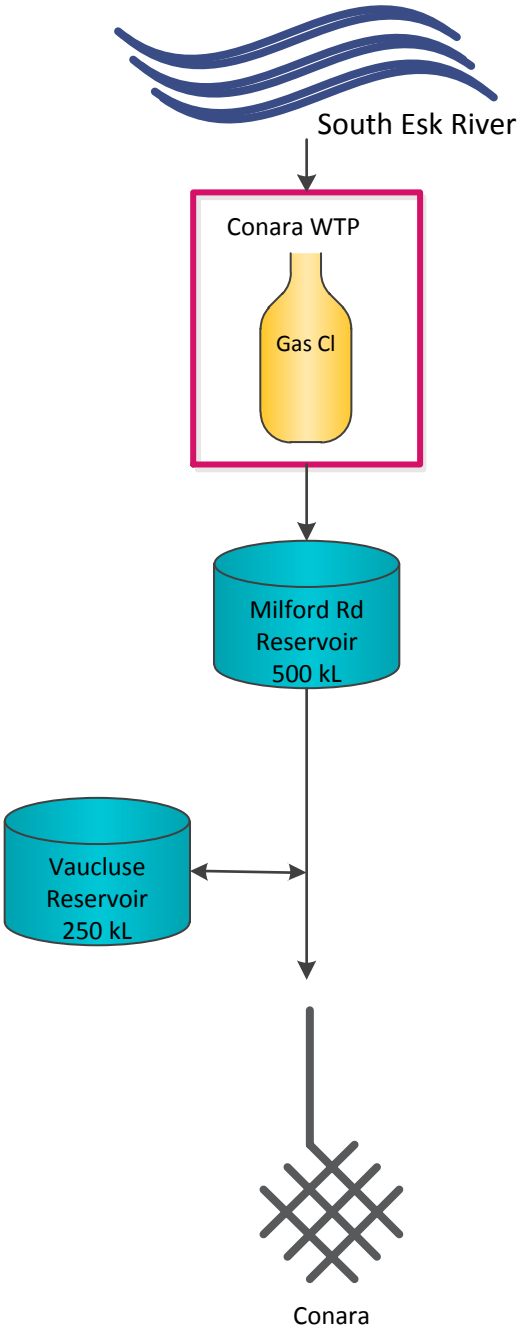


Figure 6.13.1-a Conara system schematic

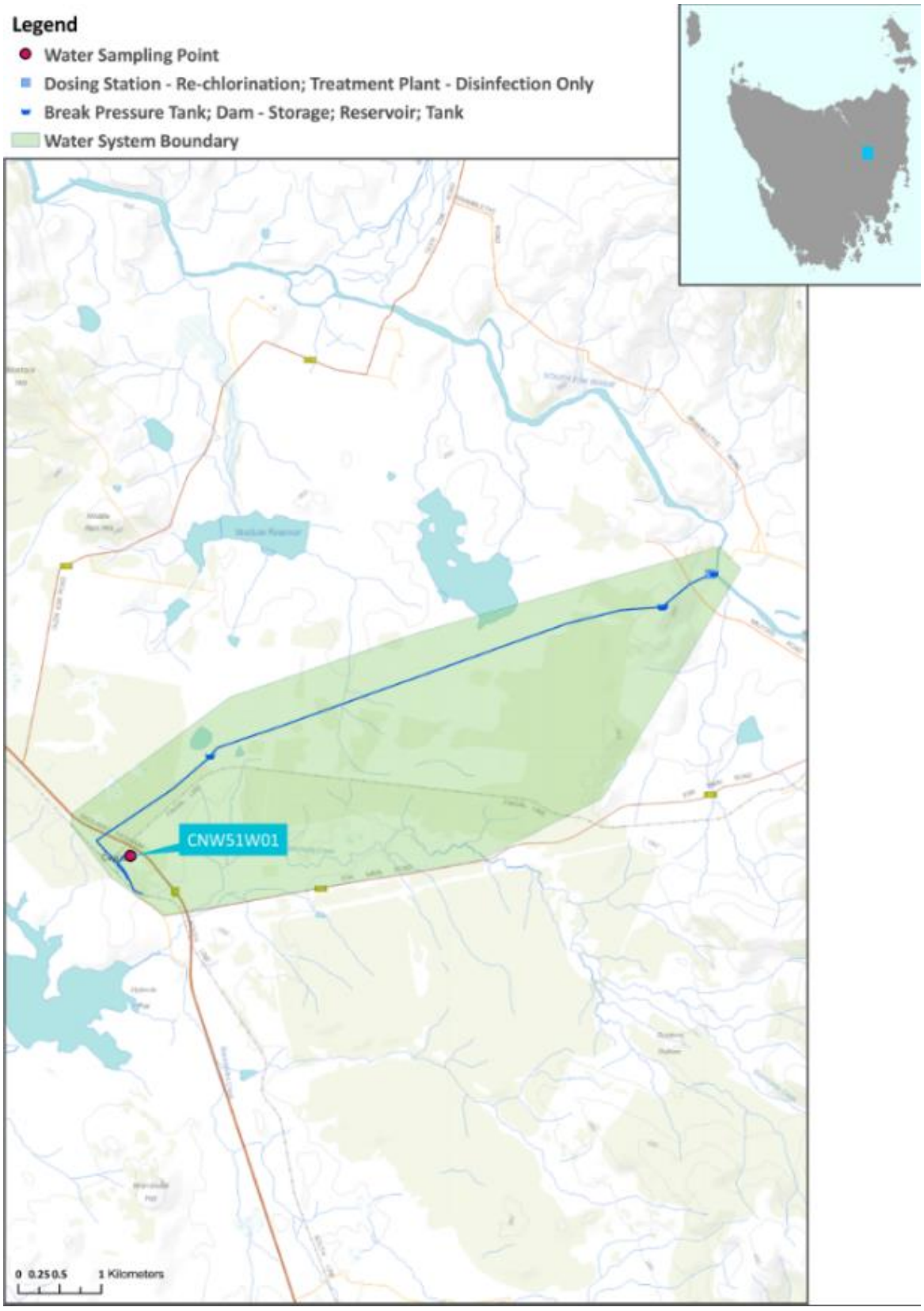


Figure 6.13.1-b Map of Conara monitoring system

6.13.2. Summary of Annual Reticulation Compliance (2016–17)

Table 6.13.2-a Compliance sampling program

Planned compliance sampling program (2016-17)								
Site name	**Site Code**	**Micros**	**Metals**	**DBP**	**Fluoride (Field)**	**Fluoride (Lab)**	**Chemical Profile**	**Process Chemicals**
Conara/Conara Public Toilets	CNW51W01	W	Q	M	n/a	n/a	Q	n/a
Number Planned Samples		**52**	**4**	**4**	**0**	**0**	**4**	**0**
Number Samples Tested		**52**	**4**	**4**	**0**	**0**	**4**	**0**

- Sample site changed to Conara / Conara Rd near SPS, CNW51W03 from 4/10/2016.

6.13.3. Summary of current and historic performance (2012-17)

Table 6.13.3-a Historical health performance overview (5 year comparison)

Historical health performance overview (5 year comparison)					
Indicator	**2012-13**	**2013-14**	**2014-15**	**2015-16**	**2016-17**
Microbiological	100.0%	100.0%	100.0%	100.0%	100%
Fluoride	n/a	n/a	n/a	n/a	n/a
Metals	100.0%	100.0%	100.0%	100.0%	97.9%
Disinfection by products	100.0%	100.0%	100.0%	81.0%	75.0%

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

6.13.4. Analysis of current health performance (2016-17)

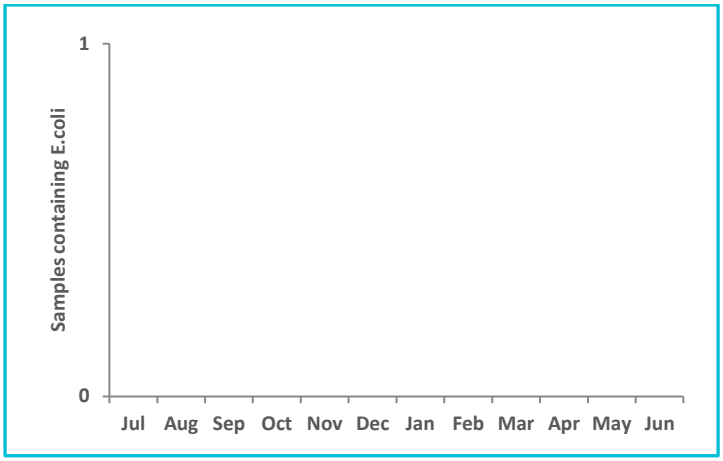


Figure 6.13.4-a Microbiological non-compliances by month (2016-17)

Table 6.13.4-a Metals performance 2016-17

Metals – health regulated parameters (2016–17)								
Parameter	Limit	Unit	Samples	Exceedances	Performance %	Mean	Min.	Max.
Antimony	0.003	mg/L	4	0	100	<0.0005	<0.0005	<0.0005
Arsenic	0.01	mg/L	4	0	100	0.0007	0.0006	<0.001
Barium	2	mg/L	4	0	100	0.0091	0.0071	0.012
Cadmium	0.002	mg/L	4	0	100	0.0006	0.0004	0.0011
Chromium	0.05	mg/L	4	0	100	0.0006	0.0002	<0.001
Copper	2	mg/L	4	0	100	0.064	0.026	0.136
Lead	0.01	mg/L	4	1	75	0.0063	0.0018	0.0173
Manganese	0.5	mg/L	4	0	100	0.0339	0.0059	0.091
Mercury	0.001	mg/L	4	0	100	0.0001	<0.00005	0.00014
Molybdenum	0.05	mg/L	4	0	100	0.0001	<0.00005	0.0001
Nickel	0.02	mg/L	4	0	100	0.001	0.0004	0.0022
Selenium	0.01	mg/L	4	0	100	0.001	<0.0001	0.002

- #One metal detection above ADWG health limits occurred in September 2016. The issue was found to be associated with the sample point and was not representative of the water received by customers. An improved location was selected and comparison samples were taken for 6 weeks. Flushing of system was performed and ongoing investigation samples were clear.

Table 6.13.4-b Disinfection by product performance 2016-17

Disinfection by products – health regulated parameters (2016–17)								
Parameter	Limit	Unit	Samples	Exceedances	Performance %	Mean	Min.	Max.
Dichloroacetic acid	100	µg/L	4	2	50	77.88	<1	138
Monochloroacetic acid	150	µg/L	4	0	100	4.38	<5	5
Trichloroacetic acid	100	µg/L	4	2	50	123.5	<2	222
Total trihalomethanes	250	µg/L	4	0	100	155.25	112	172

- *DBPs were detected above the ADWG health limits in December 2016 and June 2017. Due to a lack of filtration barriers, precursors to DBPs such as organic matter are not removed. As the system is on a BWA, chlorine residuals were reduced to try and minimise DBP formation. This work is ongoing.

6.13.5. Analysis of overall system performance (2016-17)

Table 6.13.5-a General physical performance 2016-17

General physical parameters (2016-17)					
Parameter	Unit	Guideline Value	Mean	Min	Max
Chlorine residual	mg/L	0.1 - <0.8	0.76	0.06	1.82
Colour True	HU	15	12.33	6	16
pH	Units	6.5 – 8.5	6.77	6.22	7.23
Turbidity	NTU	1	4.18	0.85	24.3

- Mean turbidity levels in this system were above the ADWG limit of 1 NTU. This is not surprising as there is no filtration step in this system. Public health is protected by the BWA.

6.14. Cornwall drinking water system

6.14.1. Summary of system status

Cornwall drinking water system	
System status (as at 30 June 2017)	BWA
Total number of connections	79
Fluoride	n/a

Performance overview against health targets (2016-17)

Indicator	Outcome	Compliant	Target	Sampling Events	Non-conformances
Microbiological	91.7%	☒	98.0%	12	1
Fluoride	n/a	n/a	n/a	n/a	n/a
Metals	100%	☑	100.0%	4	0
DBPs	n/a	n/a	n/a	n/a	n/a

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

Overall system performance (2016-17)

Indicator	Occurrences	Details
Customer complaints	0	
Public health warnings issued	0	Not issued in FY2016-17
System incidents & issues	1	*E. coli* exceedance.
Catchment and water source issues	0	

Current and future planned infrastructure and operational changes

Project	Description	Progress	Est. Delivery	Est. Spend ($'000)
Cornwall water supply system	Treated water supply to the community of Cornwall.	Tender	FY17/18	$1,837.83

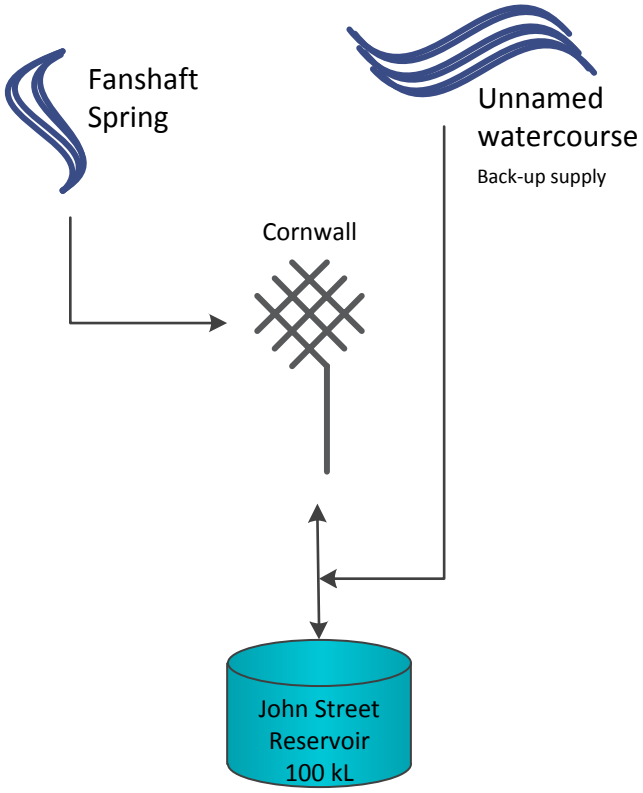


Figure 6.14.1-a Cornwall system schematic

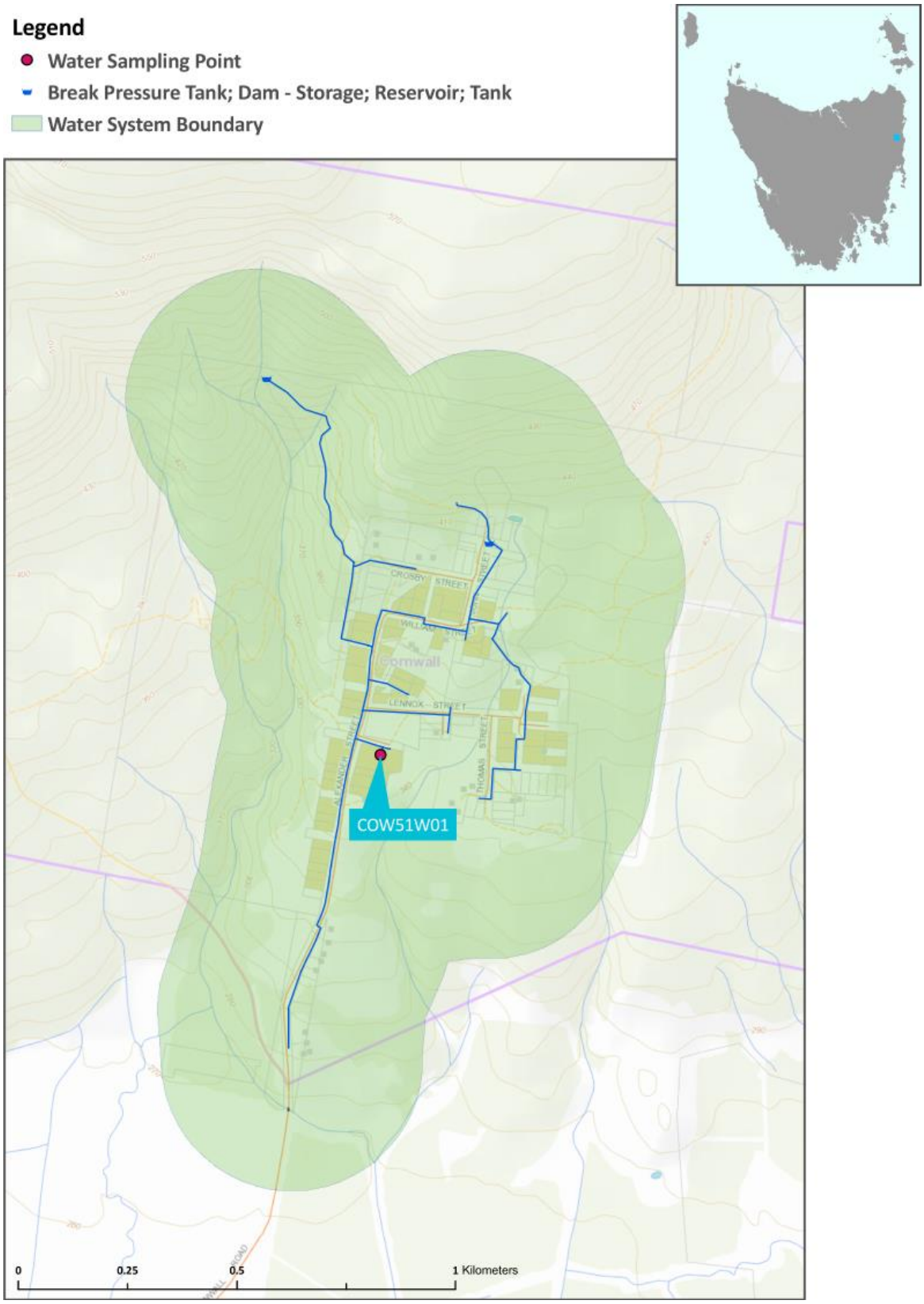


Figure 6.14.1-b Map of Cornwall monitoring system

6.14.2. Summary of Annual Reticulation Compliance (2016–17)

Table 6.14.2-a Compliance sampling program

Planned compliance sampling program (2016-17)								
Site name	Site Code	Micros	Metals	DBP	Fluoride (Field)	Fluoride (Lab)	Chemical Profile	Process Chemicals
Cornwall/Miners Park	COW51W01	W	Q	n/a	n/a	n/a	Q	n/a
Number Planned Samples		**12**	**4**	**0**	**0**	**0**	**4**	**0**
Number Samples Tested		**12**	**4**	**0**	**0**	**0**	**4**	**0**

6.14.3. Summary of current and historic performance (2012-17)

Table 6.14.3-a Historical health performance overview (5 year comparison)

Historical health performance overview (5 year comparison)					
Indicator	2012-13	2013-14	2014-15	2015-16	2016-17
Microbiological	76.0%	64.0%	58.0%	67.0%	91.7%
Fluoride	n/a	n/a	n/a	n/a	n/a
Metals	100.0%	98.0%	100.0%	100.0%	100.0%
Disinfection by products	n/a	n/a	n/a	n/a	n/a

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

6.14.4. Analysis of current health performance (2016-17)

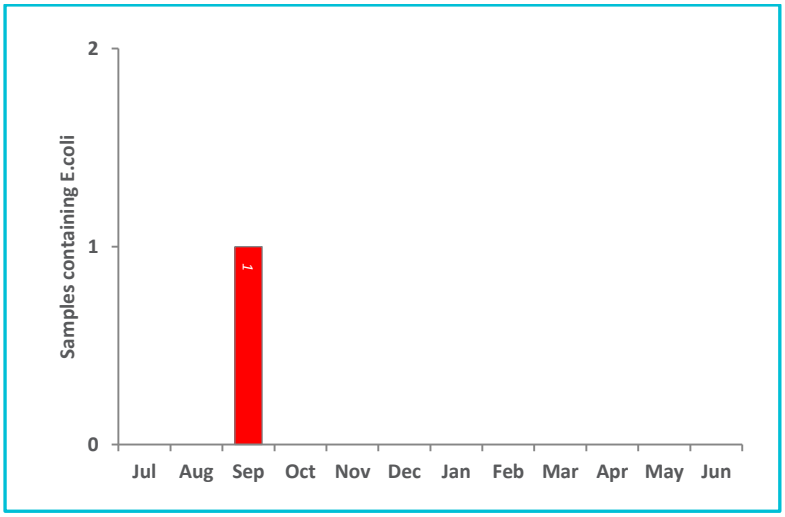


Figure 6.14.4-a Microbiological non-compliances by month (2016-17)

- Poor microbiological performance can be attributed to a lack of barriers and the susceptibility to changes in quality from the Unnamed water course.

Table 6.14.4-a Metals performance 2016-17

Metals – health regulated parameters (2016–17)								
Parameter	Limit	Unit	Samples	Exceedances	Performance %	Mean	Min.	Max.
Antimony	0.003	mg/L	4	0	100	<0.0005	<0.0005	<0.0005
Arsenic	0.01	mg/L	4	0	100	0.0005	<0.0003	<0.001
Barium	2	mg/L	4	0	100	0.1329	0.1226	0.1502
Cadmium	0.002	mg/L	4	0	100	0.0001	<0.0001	0.0002
Chromium	0.05	mg/L	4	0	100	0.0003	<0.0001	<0.001
Copper	2	mg/L	4	0	100	0.0132	0.01	0.0152
Lead	0.01	mg/L	4	0	100	0.0023	0.0014	0.0029
Manganese	0.5	mg/L	4	0	100	0.0008	0.0003	0.002
Mercury	0.001	mg/L	4	0	100	0.00004	<0.00003	<0.00005
Molybdenum	0.05	mg/L	4	0	100	0.0004	<0.0001	0.0007
Nickel	0.02	mg/L	4	0	100	0.0004	0.0003	0.0005
Selenium	0.01	mg/L	4	0	100	0.0006	<0.0001	<0.002

6.14.5. Analysis of overall system performance (2016-17)

Table 6.14.5-a General physical performance 2016-17

General physical parameters (2016-17)					
Parameter	**Unit**	**Guideline Value**	**Mean**	**Min**	**Max**
Chlorine residual	mg/L	0.1 - <0.8	n/a	n/a	n/a
Colour True	HU	15	2.33	1	3
pH	Units	6.5 – 8.5	7.48	7.0	8.0
Turbidity	NTU	1	1.48	0.33	5.1

6.15. Currie drinking water system

6.15.1. Summary of system status

Currie drinking water system	
System status (as at 30 June 2017)	Potable
Total number of connections	586
Fluoride	n/a

Performance overview against health targets (2016-17)

Indicator	Outcome	Compliant	Target	Sampling Events	Non-conformances
Microbiological	100.0%	☑	98.0%	156	0
Fluoride	n/a	n/a	n/a	n/a	n/a
Metals	100.0%	☑	100.0%	3	0
DBPs	100.0%	☑	100.0%	4	0

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

Overall system performance (2016-17)

Indicator	Occurrences	Details
Customer complaints	2	Discoloured water.
Public health warnings issued	0	
System incidents & issues	0	
Catchment and water source issues	3	Trace levels of pesticides were collected in the catchment. All results were well below the ADWG health limits.

Current and future planned infrastructure and operational changes

Project	Description	Progress	Est. Delivery	Est. Spend ($'000)
King Island Solution	Treated water to the communities of Grassy and Currie.	Constructions	FY18/19	$8,566.88

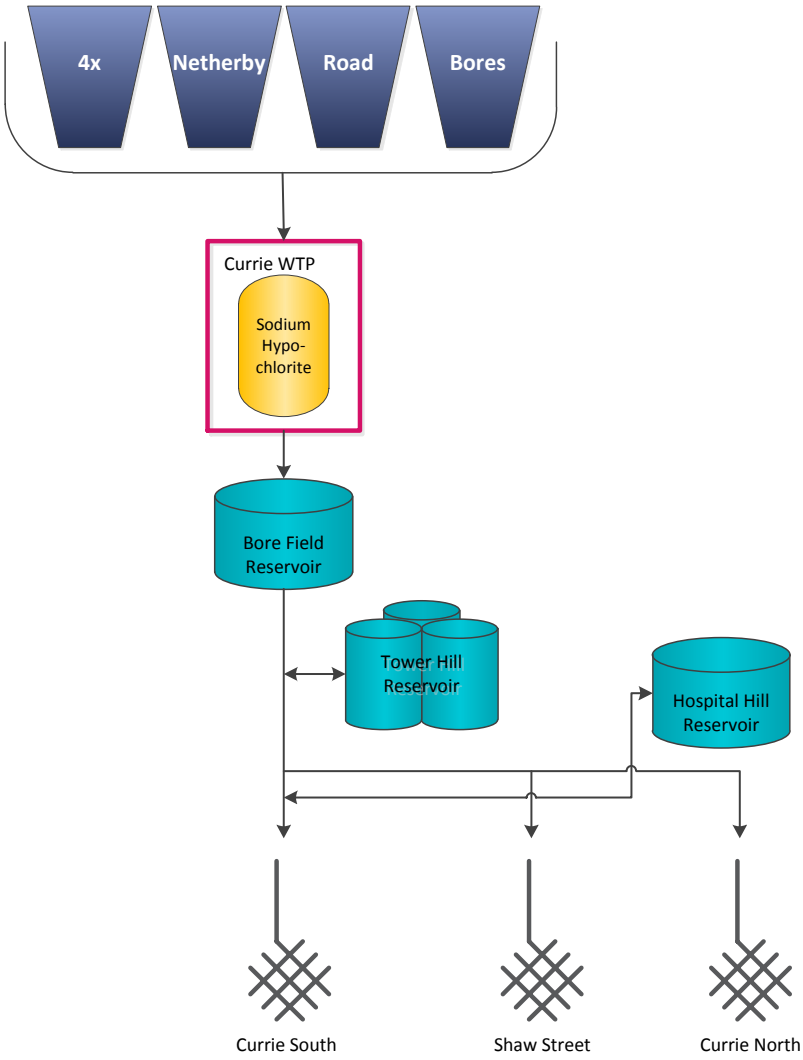


Figure 6.15.1-a Currie system schematic

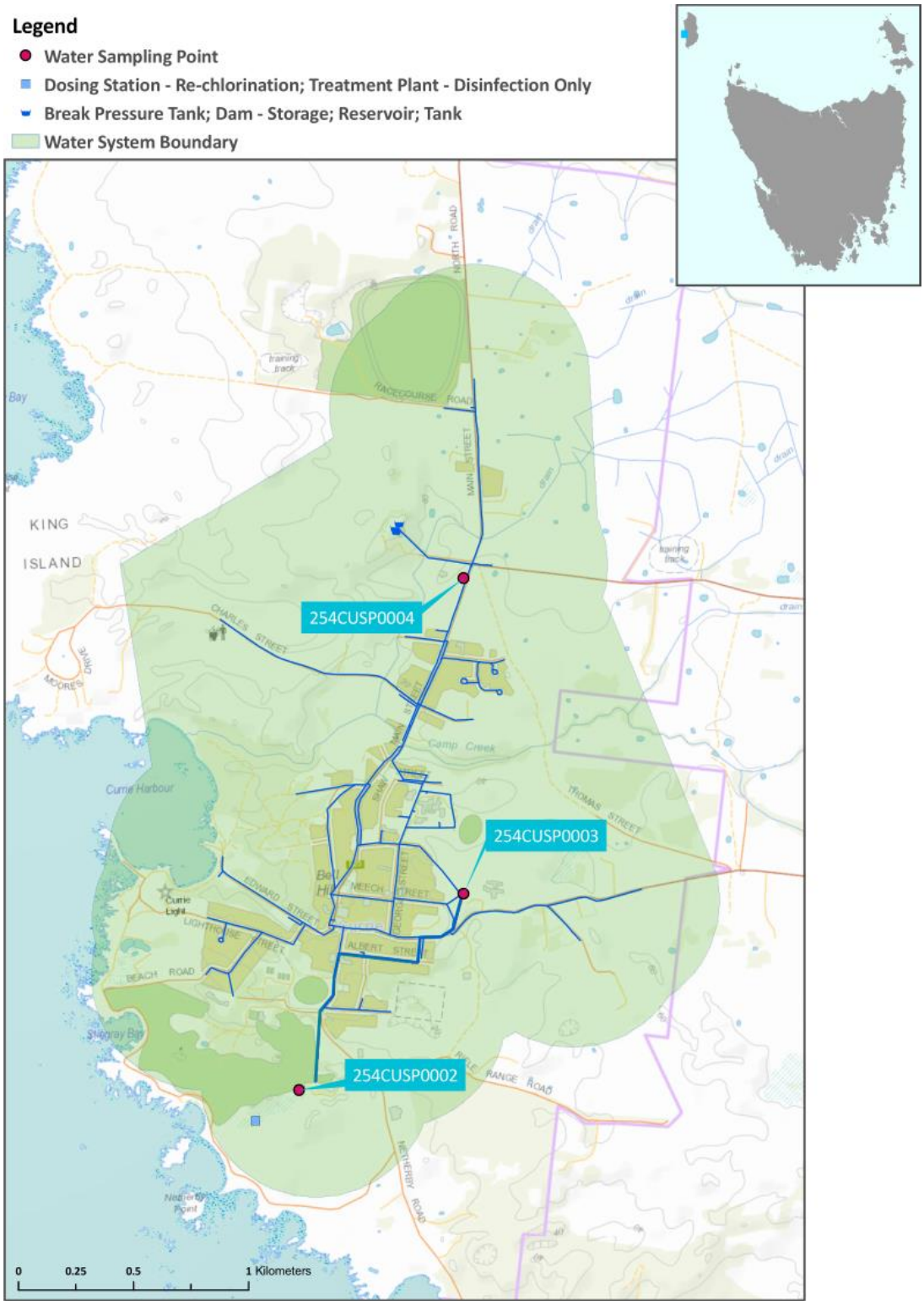


Figure 6.15.1-b Map of Currie monitoring system

6.15.2. Summary of Annual Reticulation Compliance (2016–17)

Table 6.15.2-a Compliance sampling program

Planned compliance sampling program (2016-17)								
Site name	Site Code	Micros	Metals	DBP	Fluoride (Field)	Fluoride (Lab)	Chemical Profile	Process Chemicals
Currie/Netherby Rd Pump Station Site 1	254CUSP0002	W	n/a	n/a	n/a	n/a	n/a	n/a
Currie/Hospital Tank Site 2	254CUSP0003	W	Q	Q	n/a	n/a	Q	n/a
Currie/Depot Site 3	254CUSP0004	W	n/a	n/a	n/a	n/a	n/a	n/a
Number Planned Samples		**156**	**4**	**4**	**0**	**0**	**4**	**0**
Number Samples Tested		**156**	**3#**	**4**	**0**	**0**	**3#**	**0**

- # Quarterly samples for site 254CUSP0003: Currie/Hospital Tank Site 2 were not collected in June 2017 due to sampling error.

6.15.3. Summary of current and historic performance (2012-17)

Table 6.15.3-a Historical health performance overview (5 year comparison)

Historical health performance overview (5 year comparison)					
Indicator	**2012-13**	**2013-14**	**2014-15**	**2015-16**	**2016-17**
Microbiological	100.0%	100.0%	100.0%	100.0%	100.0%
Fluoride	n/a	n/a	n/a	n/a	n/a
Metals	100.0%	100.0%	100.0%	100.0%	100.0%
Disinfection by products	n/a	95.2%	100.0%	100.0%	100.0%

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

6.15.4. Analysis of current health performance (2016-17)

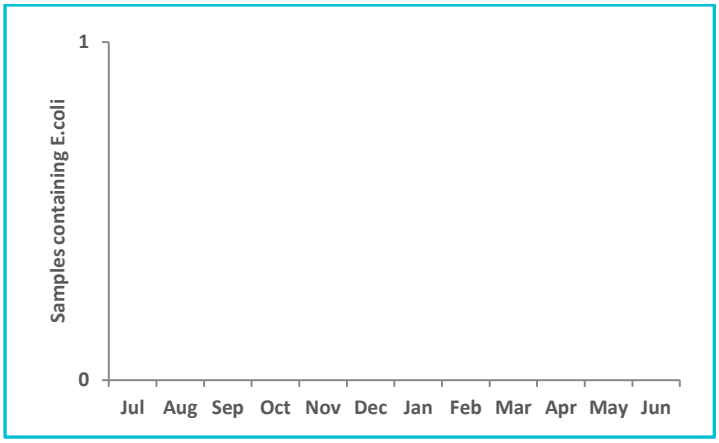


Figure 6.15.4-a Microbiological non-compliances by month (2016-17)

Table 6.15.4-a Metals performance 2016-17

Metals – health regulated parameters (2016–17)								
Parameter	Limit	Unit	Samples	Exceedances	Performance %	Mean	Min.	Max.
Antimony	0.003	mg/L	3	0	100	0.0007	<0.0005	<0.001
Arsenic	0.01	mg/L	3	0	100	0.0012	<0.001	0.0014
Barium	2	mg/L	3	0	100	0.0121	0.0112	0.014
Cadmium	0.002	mg/L	3	0	100	0.0001	<0.0001	<0.0002
Chromium	0.05	mg/L	3	0	100	0.0004	<0.0001	<0.001
Copper	2	mg/L	3	0	100	0.0013	0.0007	0.0023
Lead	0.01	mg/L	3	0	100	0.0004	<0.0001	<0.001
Manganese	0.5	mg/L	3	0	100	0.0016	<0.001	0.002
Mercury	0.001	mg/L	3	0	100	0.00013	<0.00003	0.00027
Molybdenum	0.05	mg/L	3	0	100	0.0006	0.0004	<0.001
Nickel	0.02	mg/L	3	0	100	0.0005	0.0001	<0.001
Selenium	0.01	mg/L	3	0	100	0.0008	0.0006	0.001

- # Quarterly samples for site 254CUSP0003: Currie/Hospital Tank Site 2 were not collected in June 2017 due to sampling error.

Table 6.15.4-b Disinfection by product performance 2016-17

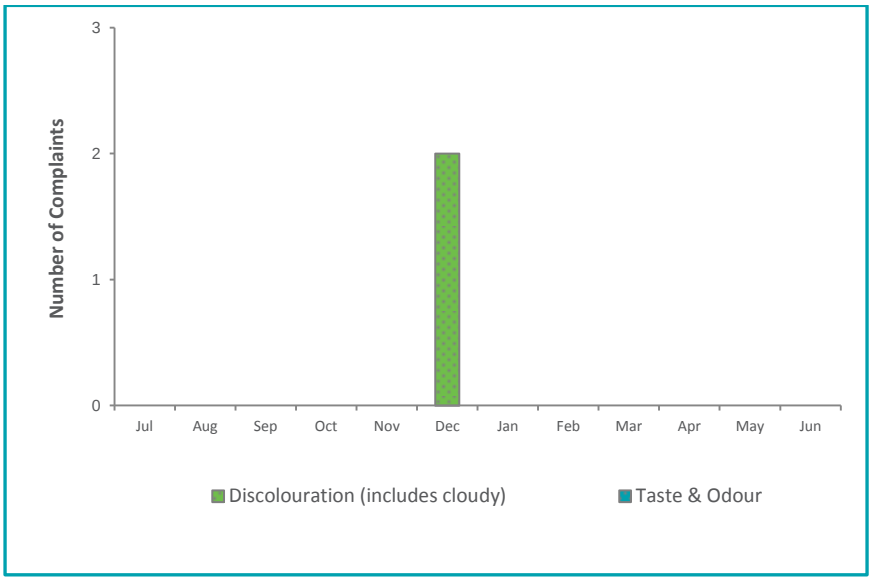
Disinfection by products – health regulated parameters (2016–17)								
Parameter	**Limit**	**Unit**	**Samples**	**Exceedances**	**Performance %**	**Mean**	**Min.**	**Max.**
Dichloroacetic acid	100	µg/L	4	0	100	1	<1	2
Monochloroacetic acid	150	µg/L	4	0	100	<3	<2	<3
Trichloroacetic acid	100	µg/L	4	0	100	1	1	<2
Total trihalomethanes	250	µg/L	4	0	100	134.25	75	176

6.15.5. Analysis of overall system performance (2016-17)

Table 6.15.5-a General physical performance 2016-17

General physical parameters (2016-17)					
Parameter	**Unit**	**Guideline Value**	**Mean**	**Min**	**Max**
Chlorine residual	mg/L	0.1 - <0.8	0.51	0.02	1.21
Colour True	HU	15	7.4	5	10
pH	Units	6.5 – 8.5	7.38	7.21	7.56
Turbidity	NTU	1	0.11	0.04	0.16

Figure 6.15.5-a Customer complaints by month and type.



6.16. Deep Creek drinking water system

6.16.1. Summary of system status

Deep Creek drinking water system	
System status (as at 30 June 2017)	Potable
Total number of connections	2424
Fluoride	Fluorosilicic acid

Performance overview against health targets (2016-17)

Indicator	Outcome	Compliant	Target	Sampling Events	Non-conformances
Microbiological	100.0%	☑	98.0%	572	0
Fluoride	100.0%	☑	100.0%	104	0
Metals	100.0%	☑	100.0%	23	0
DBPs	100.0%	☑	100.0%	11	0

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

Overall system performance (2016-17)

Indicator	Occurrences	Details
Customer complaints	15	Discoloured water, taste & odour.
Public health warnings issued	0	
System incidents & issues	0	
Catchment and water source issues	0	

Current and future planned infrastructure and operational changes

Project	Description	Progress	Est. Delivery	Est. Spend ($'000)
Irishtown water supply and chlorine booster station	This project will achieve the ADWG targets for chlorine residuals and provide adequate treated water supply for the Irishtown reticulation.	Tender	FY17/18	$468

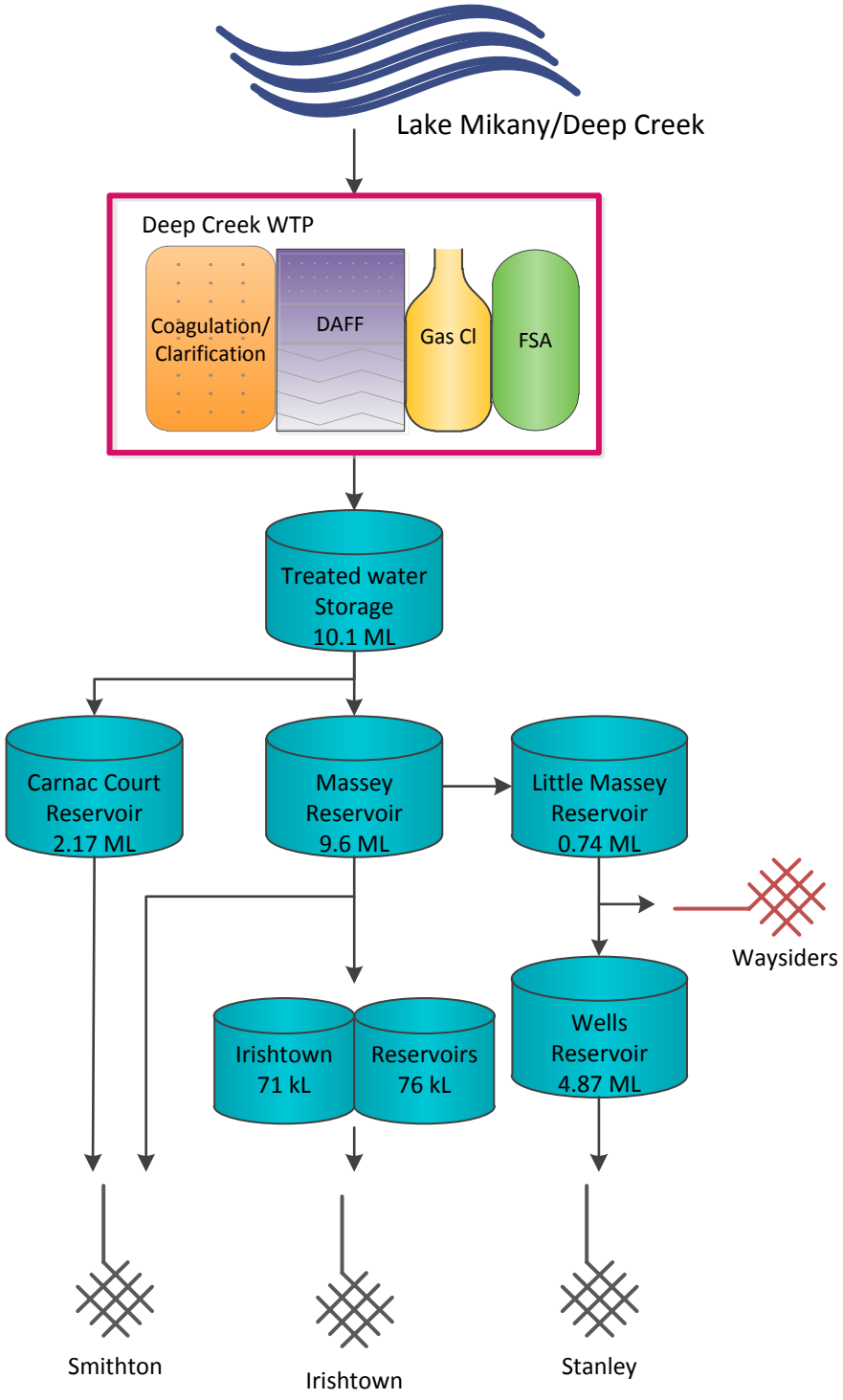


Figure 6.16.1-a Deep Creek system schematic

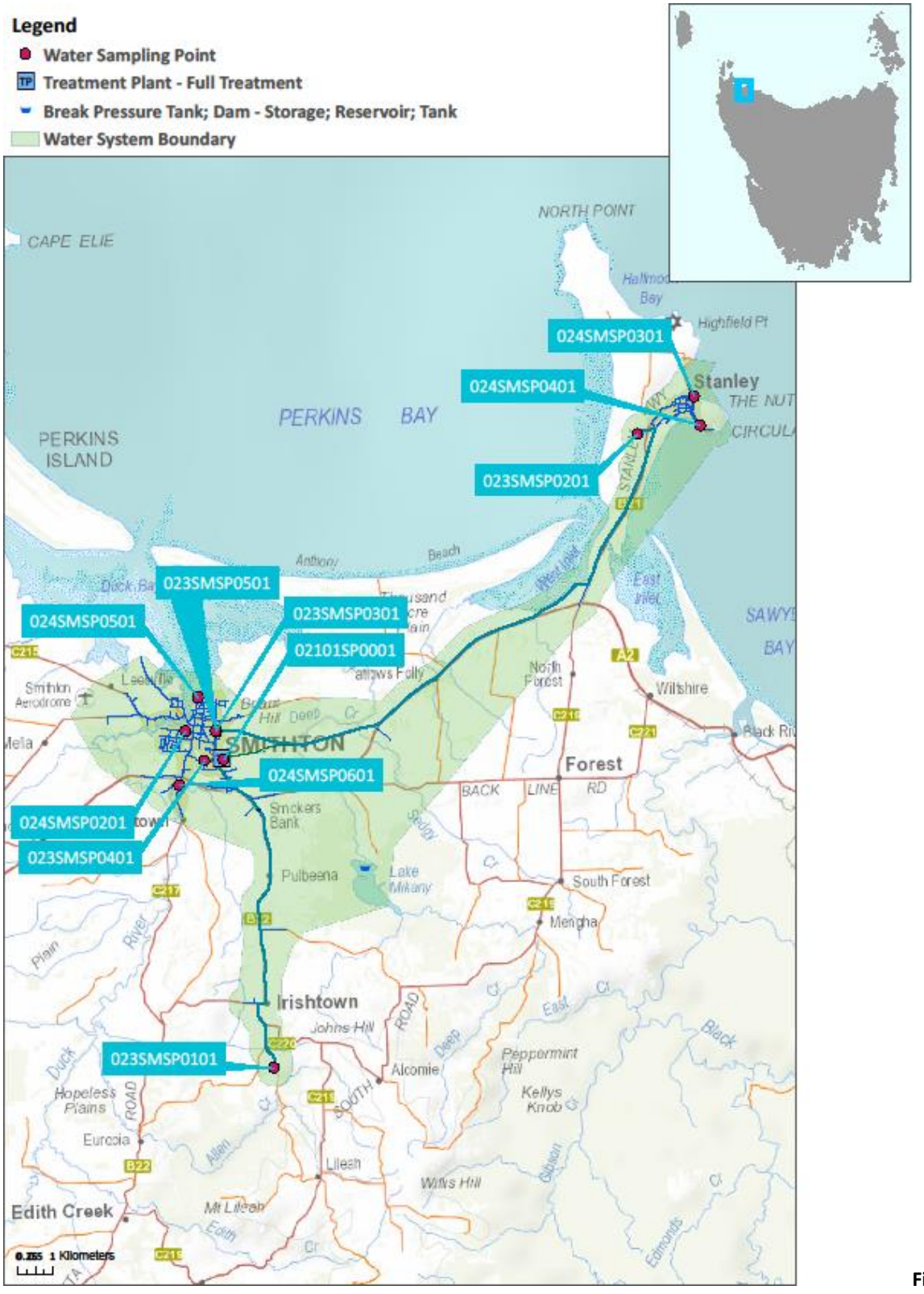


Figure 6.16.1-b Map of Deep Creek monitoring system

6.16.2. Summary of Annual Reticulation Compliance (2016–17)

Table 6.16.2-a Compliance sampling program

Planned compliance sampling program (2016-17)								
Site name	Site Code	Micros	Metals	DBP	Fluoride (Field)	Fluoride (Lab)	Chemical Profile	Process Chemicals
Smithton/Treated Water Storage Sample Point	02101SP0001	W	n/a	n/a	n/a	n/a	Q	M
Smithton/Youngs Res Sample Point#	023SMSP0101	W	Q	Q	n/a	n/a	n/a	n/a
Smithton/Wells Res Sample Point	023SMSP0201	W	n/a	n/a	n/a	n/a	n/a	n/a
Smithton/Little Massey Res Sample Point	023SMSP0301	W	n/a	n/a	W	M	n/a	n/a
Smithton/Carnac Crt Res Sample Point	023SMSP0401	W	n/a	n/a	n/a	n/a	n/a	n/a
Smithton/Big Massey Res Sample Point	023SMSP0501	W	n/a	n/a	n/a	n/a	n/a	n/a
Smithton/Marine Park Sample Point	024SMSP0401	W	Q	Q	W	n/a	Q	n/a
Smithton/Nelson St Sample Point	024SMSP0501	W	n/a	n/a	n/a	n/a	n/a	n/a
Smithton/Scotchtown Rd Sample Point	024SMSP0601	W	Q	Q	n/a	n/a	Q	n/a
Smithton/Gibson St Sample Point	024SMSP0201	W	n/a	n/a	n/a	n/a	n/a	n/a
Smithton/Kings Park Sample Point	024SMSP0301	W	n/a	n/a	n/a	n/a	n/a	n/a
Number Planned Samples		**572**	**12**	**12**	**104**	**12**	**12**	**12**
Number Samples Tested		**572**	**11***	**10***	**104**	**12**	**11**	**12**

- #Smithton/Irishtown Fire Station replaced Smithton/Youngs Res Sample Point from 11/10/2017
- * Smithton/Scotchtown Rd missing DBP-HAA's in February 2017 due to incorrectly sampled
- * Smithton/Irishtown Fire Station not sampled 21/2/17 for metals or DBP.

6.16.3. Summary of current and historic performance (2012-17)

Table 6.16.3-a Historical health performance overview (5 year comparison)

Historical health performance overview (5 year comparison)					
Indicator	**2012-13**	**2013-14**	**2014-15**	**2015-16**	**2016-17**
Microbiological	99.8%	99.2%	99.4%	99.0%	100.0%
Fluoride	n/a	n/a	100.0%	100.0%	100.0%
Metals	n/a	100.0%	100.0%	100.0%	100.0%
Disinfection by products	n/a	100.0%	100.0%	100.0%	100.0%

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

Table 6.16.3-b Distribution fluoride testing overview (5 year comparison)

Distribution fluoride testing overview (5 year comparison)					
Indicator	**2012-13**	**2013-14**	**2014-15**	**2015-16**	**2016-17**
Exceeding 1.5 mg/L	n/a	n/a	0	0	0
Within target range (%)	n/a	n/a	100.0%	100.0%	100.0%
Mean dose (mg/L)	n/a	n/a	0.96	0.96	0.91

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

6.16.4. Analysis of current health performance (2016-17)

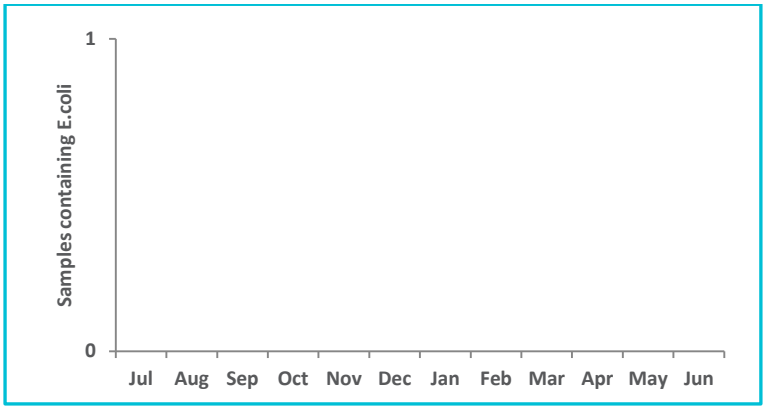


Figure 6.16.4-a Microbiological non-compliances by month (2016-17)

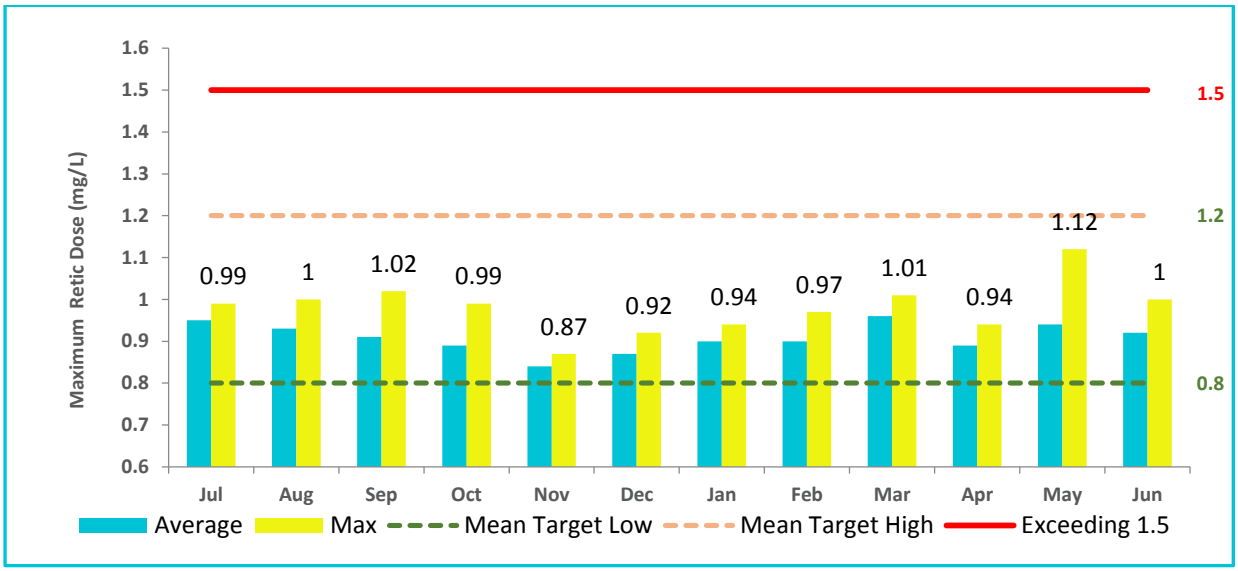


Figure 6.16.4-b Average reticulation fluoride dose by month (2016-17)

Table 6.16.4-a Metals performance 2016-17

Metals – health regulated parameters (2016–17)								
Parameter	Limit	Unit	Samples	Exceedances	Performance %	Mean	Min.	Max.
Antimony	0.003	mg/L	11	0	100	<0.0005	<0.0005	<0.0005
Arsenic	0.01	mg/L	23	0	100	0.0007	<0.0003	0.0014
Barium	2	mg/L	23	0	100	0.0125	0.0069	0.021
Cadmium	0.002	mg/L	23	0	100	<0.0001	<0.0001	<0.0001
Chromium	0.05	mg/L	23	0	100	0.0006	<0.0001	<0.001
Copper	2	mg/L	11	0	100	0.0032	<0.001	0.022
Lead	0.01	mg/L	23	0	100	0.0005	<0.0001	0.0027
Manganese	0.5	mg/L	23	0	100	0.0133	0.0012	0.0406
Mercury	0.001	mg/L	23	0	100	0.00008	<0.00003	0.00044
Molybdenum	0.05	mg/L	11	0	100	0.0003	<0.0001	<0.0005
Nickel	0.02	mg/L	23	0	100	0.0016	0.0004	0.0036
Selenium	0.01	mg/L	23	0	100	0.0011	<0.0001	<0.002

- * Smithton/Irishtown Fire Station not sampled 21/2/17 for metals or DBP.

Table 6.16.4-b Disinfection by product performance 2016-17

Disinfection by products – health regulated parameters (2016–17)								
Parameter	**Limit**	**Unit**	**Samples**	**Exceedances**	**Performance %**	**Mean**	**Min.**	**Max.**
Dichloroacetic acid	100	µg/L	10	0	100	4.05	<1	9
Monochloroacetic acid	150	µg/L	10	0	100	<5	<3	<5
Trichloroacetic acid	100	µg/L	10	0	100	5.55	<1	20
Total trihalomethanes	250	µg/L	10	0	100	75.91	43	98

- * Smithton/Irishtown Fire Station not sampled 21/2/17 for metals or DBP.
- * Smithton/Scotchtown Rd missing DBP-HAA's in February 2017 due to sampling error.

6.16.5. Analysis of overall system performance (2016-17)

Table 6.16.5-a General physical performance 2016-17

General physical parameters (2016-17)					
Parameter	**Unit**	**Guideline Value**	**Mean**	**Min**	**Max**
Chlorine residual	mg/L	0.1 - <0.8	0.36	0.00	2.20
Colour True	HU	15	<1	<1	2
pH	Units	6.5 – 8.5	7.51	6.88	9.05
Turbidity	NTU	1	0.23	0.11	0.85

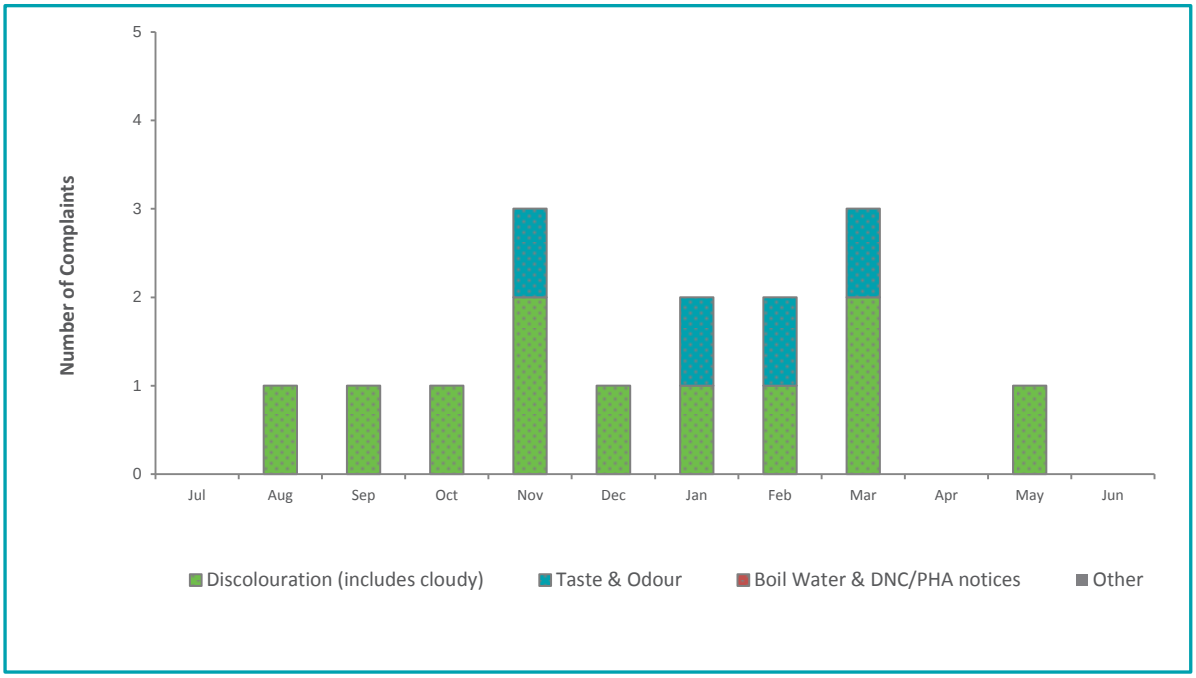


Figure 6.16.5-b Customer complaints by month and type

6.17. Deloraine drinking water system

6.17.1. Summary of system status

Deloraine drinking water system	
System status (as at 30 June 2017)	Potable
Total number of connections	1343
Fluoride	Fluorosilicic acid

Performance overview against health targets (2016-17)

Indicator	Outcome	Compliant	Target	Sampling Events	Non-conformances
Microbiological	100.0%	☑	98.0%	104	0
Fluoride	100.0%	☑	100.0%	104	0
Metals	100.0%	☑	100.0%	8	0
DBPs	100.0%	☑	100.0%	8	0

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

Overall system performance (2016-17)

Indicator	Occurrences	Details
Customer complaints	6	Discoloured water.
Public health warnings issued	0	
System incidents & issues	0	
Catchment and water source issues	0	

Current and future planned infrastructure and operational changes

Project	Description	Progress	Est. Delivery	Est. Spend
n/a	n/a	n/a	n/a	n/a

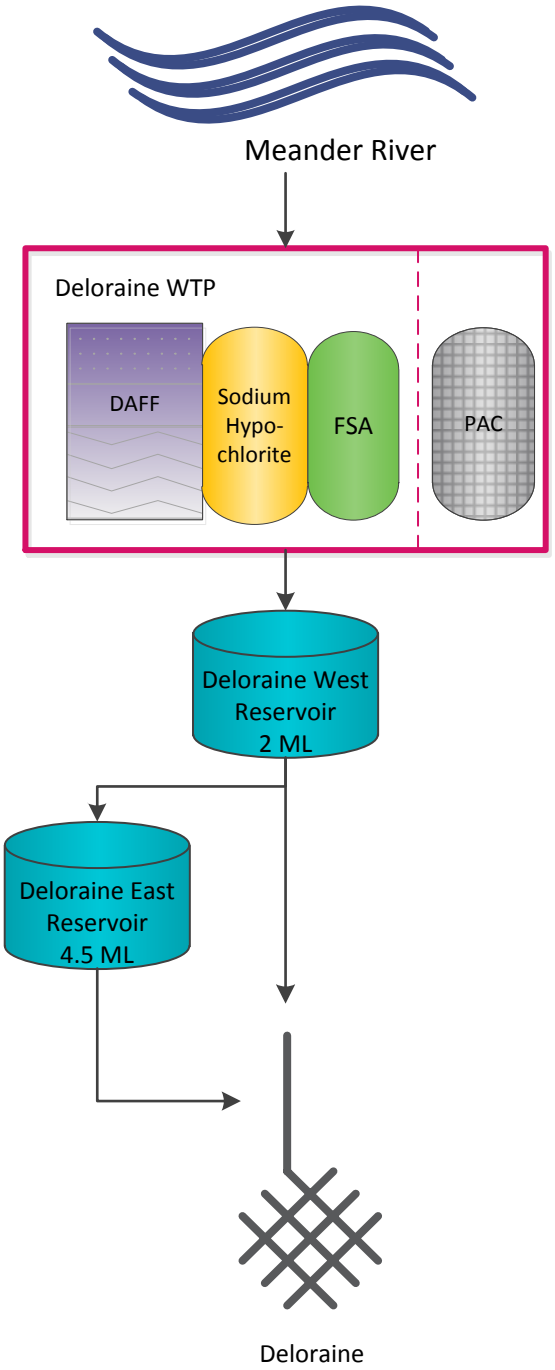


Figure 6.17.1-a Deloraine system schematic

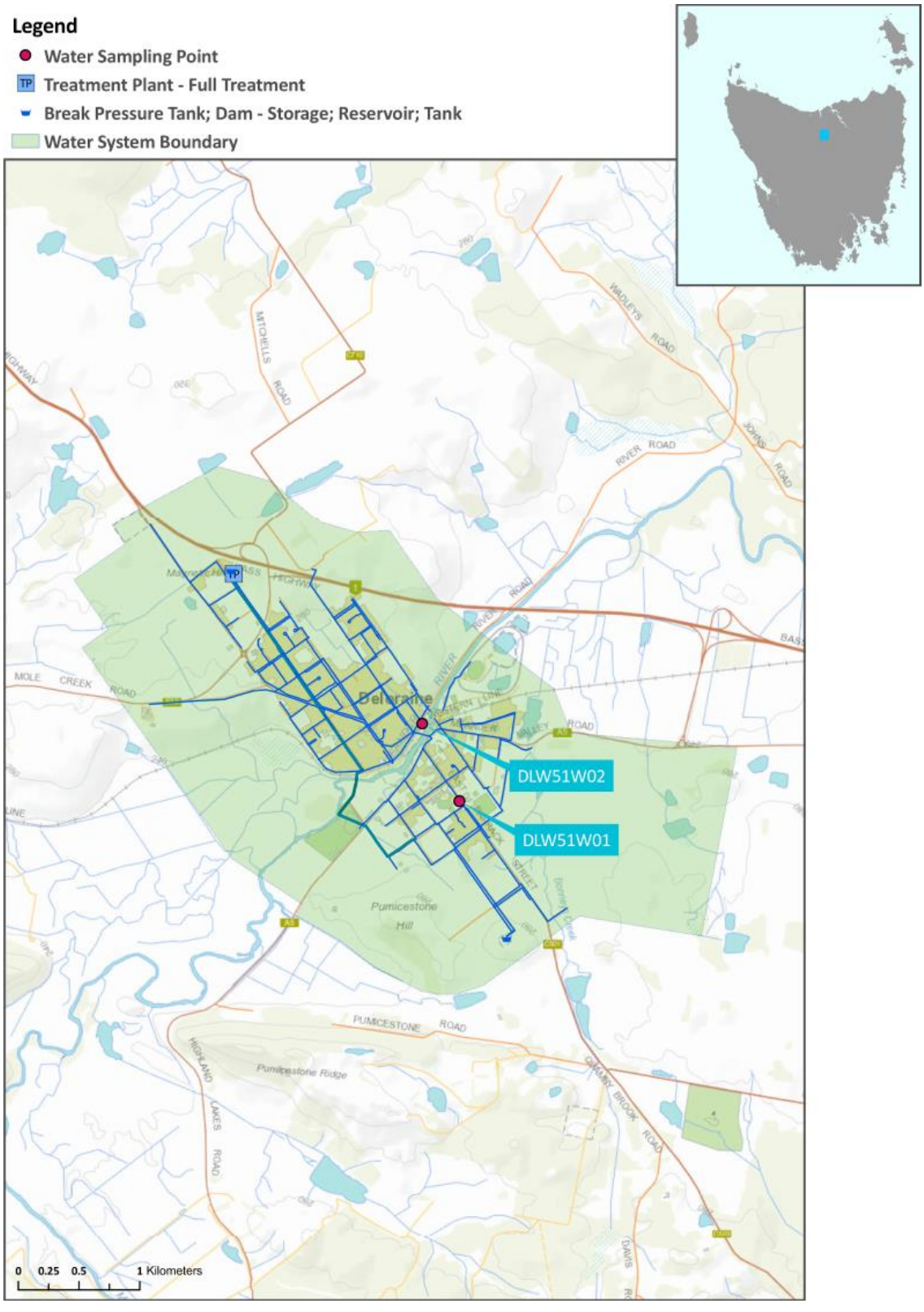


Figure 6.17.1-b Map of Deloraine monitoring system

6.17.2. Summary of Annual Reticulation Compliance (2016–17)

Table 6.17.2-a Compliance sampling program

Planned compliance sampling program (2016-17)								
Site name	Site Code	Micros	Metals	DBP	Fluoride (Field)	Fluoride (Lab)	Chemical Profile	Process Chemicals
Deloraine/Deloraine, Barrack St	DLW51W01	W	Q	Q	W	M	Q	n/a
Deloraine/Deloraine, Train Park	DLW51W02	W	Q	Q	W	n/a	Q	n/a
Number Planned Samples		**104**	**8**	**8**	**104**	**12**	**8**	**0**
Number Samples Tested		**104**	**8**	**8**	**104**	**12**	**8**	**0**

6.17.3. Summary of current and historic performance (2012-17)

Table 6.17.3-a Historical health performance overview (5 year comparison)

Historical health performance overview (5 year comparison)					
Indicator	2012-13	2013-14	2014-15	2015-16	2016-17
Microbiological	100.0%	100.0%	100.0%	100.0%	100.0%
Fluoride	100.0%	100.0%	100.0%	100.0%	100.0%
Metals	100.0%	100.0%	100.0%	100.0%	100.0%
Disinfection by products	100.0%	100.0%	100.0%	100.0%	100.0%

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

Table 6.17.3-b Distribution fluoride testing overview (5 year comparison)

Distribution fluoride testing overview (5 year comparison)					
Indicator	**2012-13**	**2013-14**	**2014-15**	**2015-16**	**2016-17**
Exceeding 1.5 mg/L	Not required	Not required	0	0	0
Within target range (%)	Not required	Not required	98.0%	85.6%	93.3%
Mean dose (mg/L)	Not required	Not required	0.94	0.83	0.88

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

6.17.4. Analysis of current health performance (2016-17)

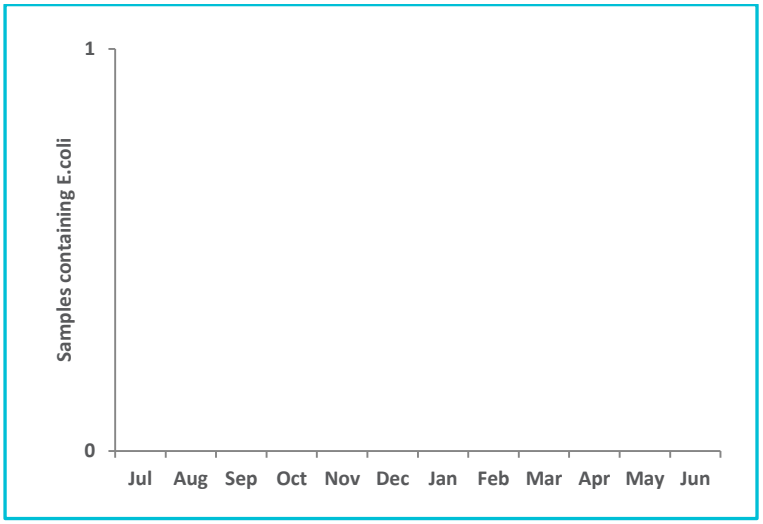


Figure 6.17.4-a Microbiological non-compliances by month (2016-17)

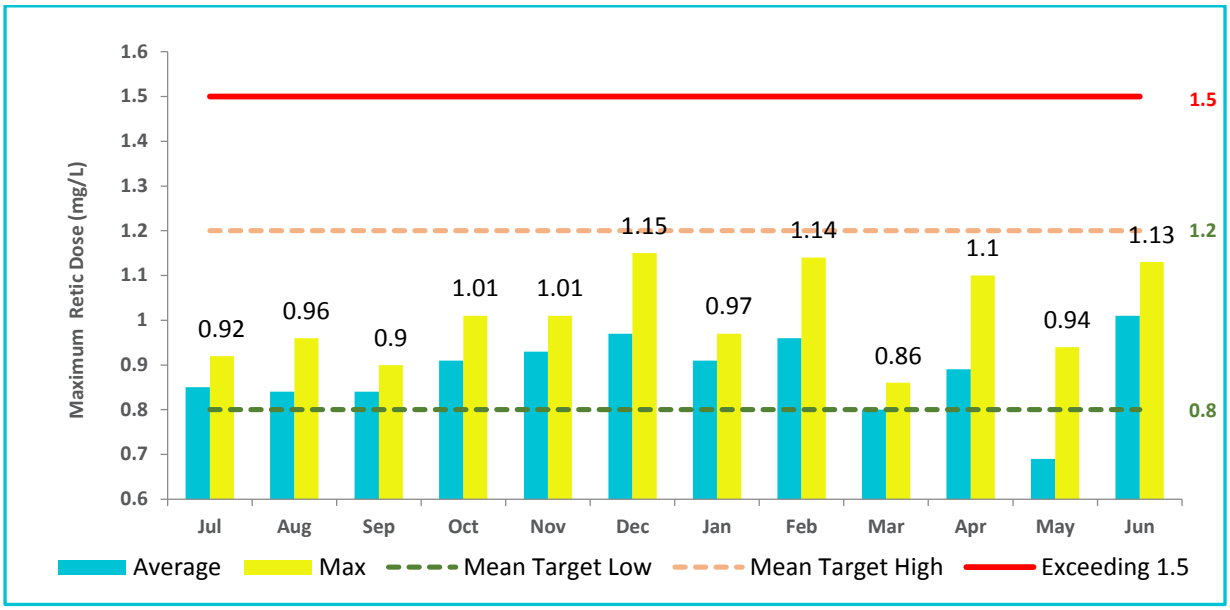


Figure 6.17.4-b Average reticulation fluoride dose by month (2016-17)

Table 6.17.4-a Metals performance 2016-17

Metals – health regulated parameters (2016–17)								
Parameter	Limit	Unit	Samples	Exceedances	Performance %	Mean	Min.	Max.
Antimony	0.003	mg/L	8	0	100	<0.0005	<0.0005	<0.0005
Arsenic	0.01	mg/L	8	0	100	0.0005	<0.0003	<0.001
Barium	2	mg/L	8	0	100	0.0058	0.0044	0.007
Cadmium	0.002	mg/L	8	0	100	0.0001	<0.0001	0.0001
Chromium	0.05	mg/L	8	0	100	0.0003	<0.0001	<0.001
Copper	2	mg/L	8	0	100	0.0019	<0.0001	0.0042
Lead	0.01	mg/L	8	0	100	0.0002	<0.0001	<0.0005
Manganese	0.5	mg/L	8	0	100	0.0055	0.0012	0.025
Mercury	0.001	mg/L	8	0	100	0.00009	<0.00003	0.00024
Molybdenum	0.05	mg/L	8	0	100	0.0002	<0.0001	<0.0005
Nickel	0.02	mg/L	8	0	100	0.0005	<0.0001	0.0022
Selenium	0.01	mg/L	8	0	100	0.0006	<0.0001	<0.002

Table 6.17.4-b Disinfection by product performance 2016-17

Disinfection by products – health regulated parameters (2016–17)								
Parameter	Limit	Unit	Samples	Exceedances	Performance %	Mean	Min.	Max.
Dichloroacetic acid	100	µg/L	8	0	100	4.63	2	9
Monochloroacetic acid	0.01	µg/L	8	0	100	<5	<3	<5
Trichloroacetic acid	2	µg/L	8	0	100	7.5	3	14
Total trihalomethanes	0.002	µg/L	8	0	100	18.38	14	24

6.17.5. Analysis of overall system performance (2016-17)

Table 6.17.5-a General physical performance 2016-17

General physical parameters (2016-17)					
Parameter	Unit	Guideline Value	Mean	Min	Max
Chlorine residual	mg/L	0.1 - <0.8	0.57	0.15	1.03
Colour True	HU	15	<1	<1	1
pH	Units	6.5 – 8.5	7.62	7.02	8.17
Turbidity	NTU	1	0.25	0.04	0.93

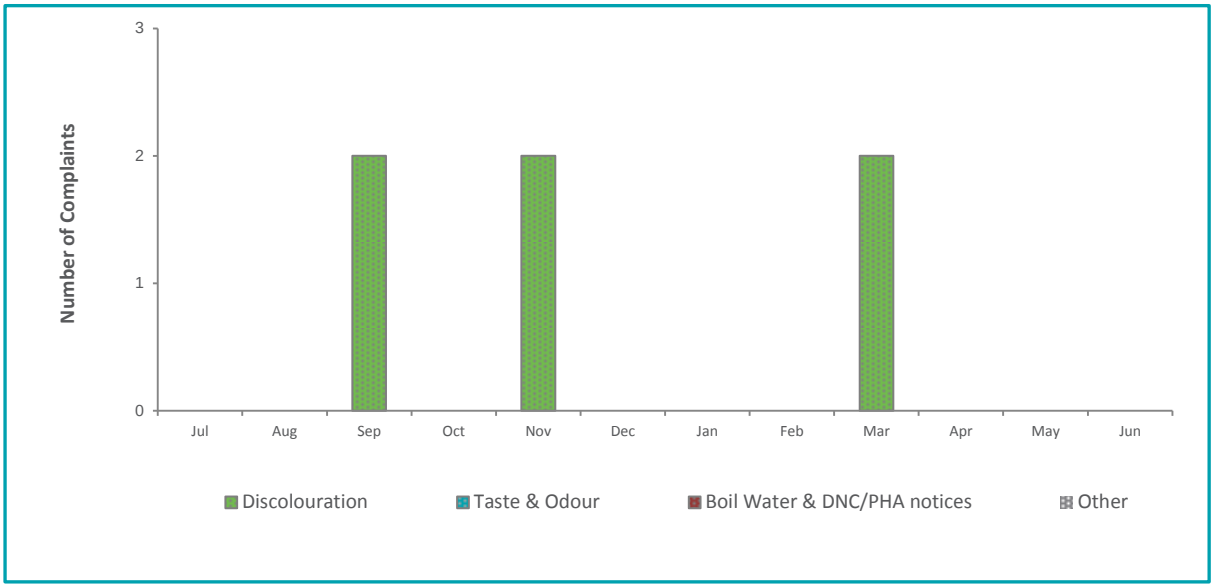


Figure 6.17.5-a Customer complaints by month and type

6.18. Derby drinking water system

6.18.1. Summary of system status

Derby drinking water system	
System status (as at 30 June 2017)	BWA
Total number of connections	147
Fluoride	n/a

Performance overview against health targets (2016-17)

Indicator	Outcome	Compliant	Target	Sampling Events	Non-conformances
Microbiological	66.7%	☒	98.0%	12	4
Fluoride	n/a	n/a	n/a	n/a	n/a
Metals	100.0%	☑	100.0%	4	0
DBPs	n/a	n/a	n/a	n/a	n/a

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

Overall system performance (2016-17)

Indicator	Occurrences	Details
Customer complaints	1	Boil water & DNC alerts.
Public health warnings issued	0	
System incidents & issues	4	E. coli exceedances.
Catchment and water source issues	0	

Current and future planned infrastructure and operational changes

Project	Description	Progress	Est. Delivery	Est. Spend ($'000)
Ringarooma Valley scheme	New WTP at Ringarooma to supply the communities of Ringarooma, Legerwood, Branxholm, Derby and Winnaleah	Commissioning	FY17/18	$124.82

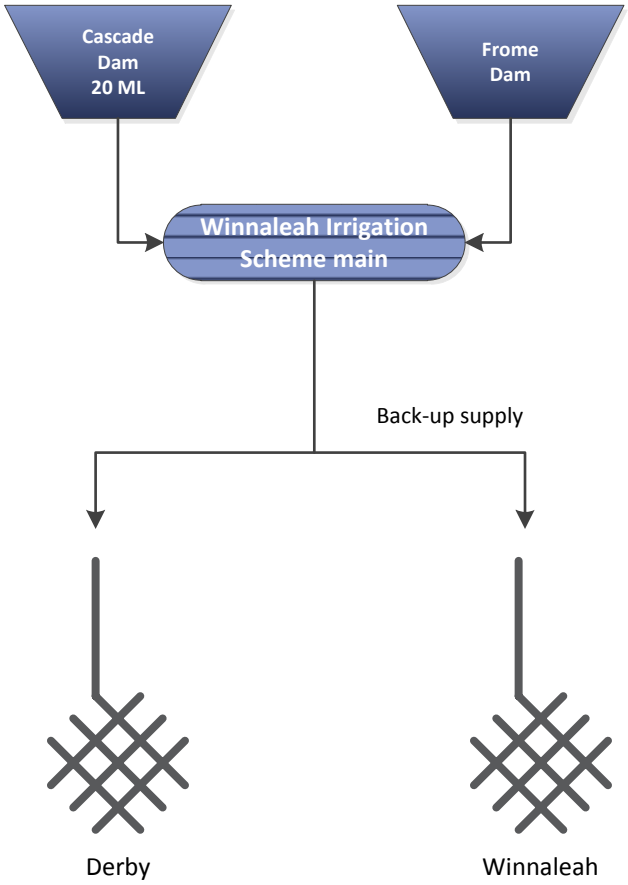


Figure 6.18.1-a Derby system schematic

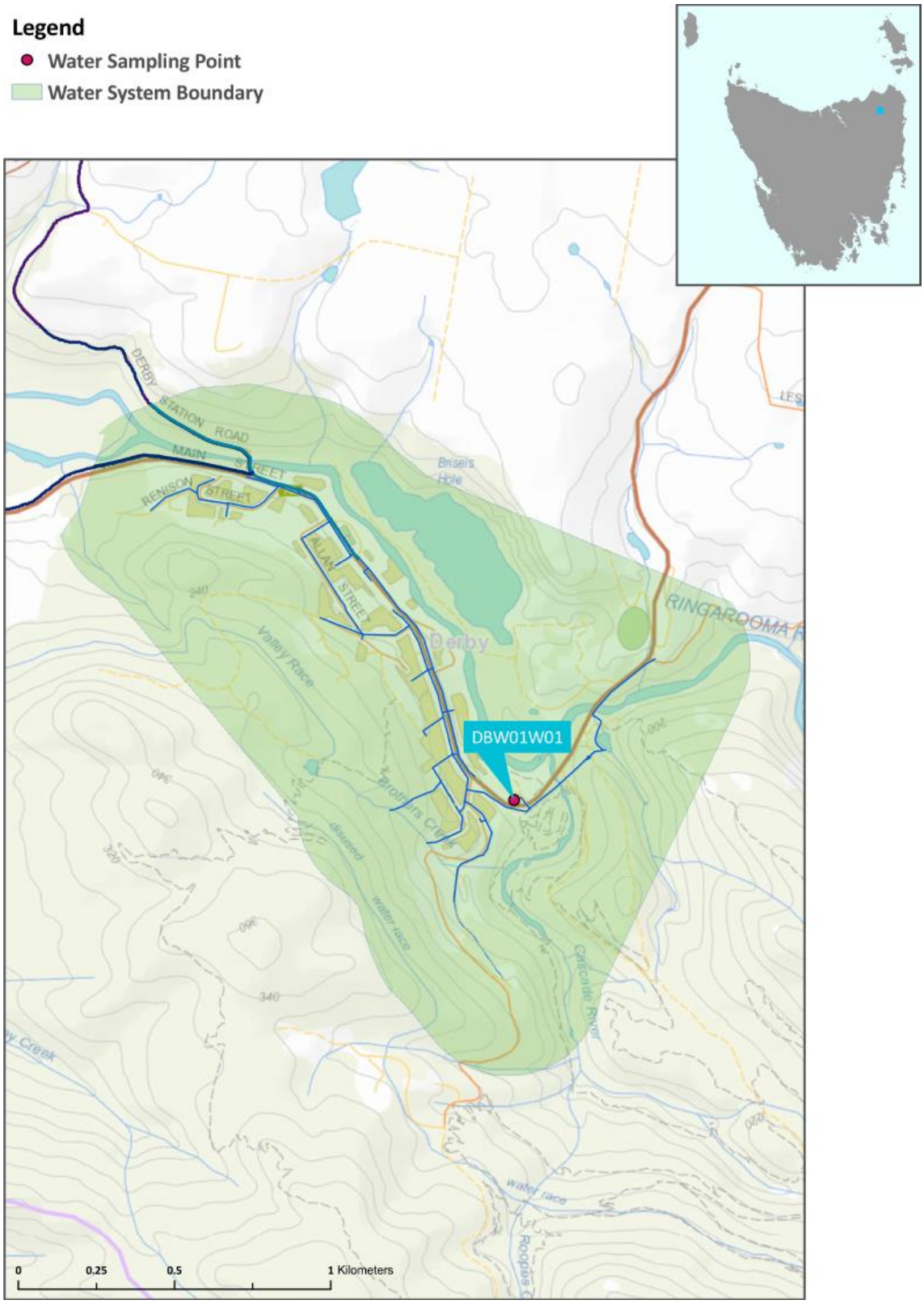


Figure 6.18.1-b Map of Derby monitoring system

6.18.2. Summary of Annual Reticulation Compliance (2016–17)

Table 6.18.2-a Compliance sampling program

Planned compliance sampling program (2016-17)								
Site name	Site Code	Micros	Metals	DBP	Fluoride (Field)	Fluoride (Lab)	Chemical Profile	Process Chemicals
Derby/Council Depot	DBW01W01	W	Q	n/a	n/a	n/a	Q	n/a
Number Planned Samples		**12**	**4**	**0**	**0**	**0**	**4**	**0**
Number Samples Tested		**12**	**4**	**0**	**0**	**0**	**4**	**0**

6.18.3. Summary of current and historic performance (2012-17)

Table 6.18.3-a Historical health performance overview (5 year comparison)

Historical health performance overview (5 year comparison)					
Indicator	**2012-13**	**2013-14**	**2014-15**	**2015-16**	**2016-17**
Microbiological	42.0%	50.0%	59.4%	75.0%	66.7%
Fluoride	n/a	n/a	n/a	n/a	n/a
Metals	100.0%	100.0%	100.0%	100.0%	100%
Disinfection by products	n/a	n/a	n/a	n/a	n/a

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

6.18.4. Analysis of current health performance (2016-17)

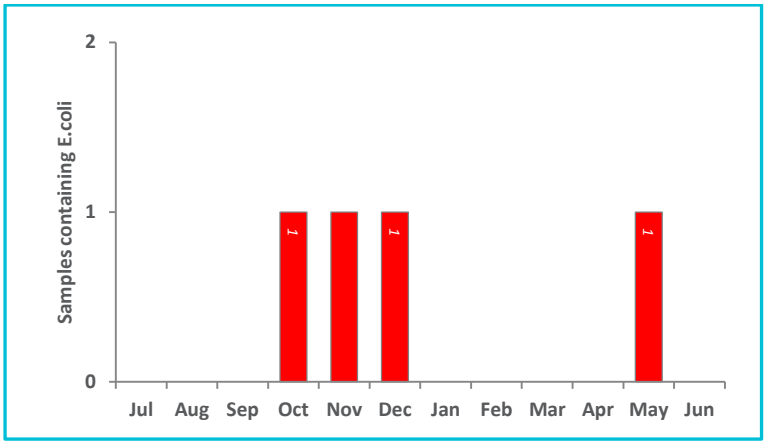


Figure 6.18.4-a Microbiological non-compliances by month (2016-17)

- Poor microbiological performance can be attributed to a lack of barriers and the susceptibility to changes in quality from the Cascade Dam and Frome Dam.

Table 6.18.4-a Metals performance 2016-17

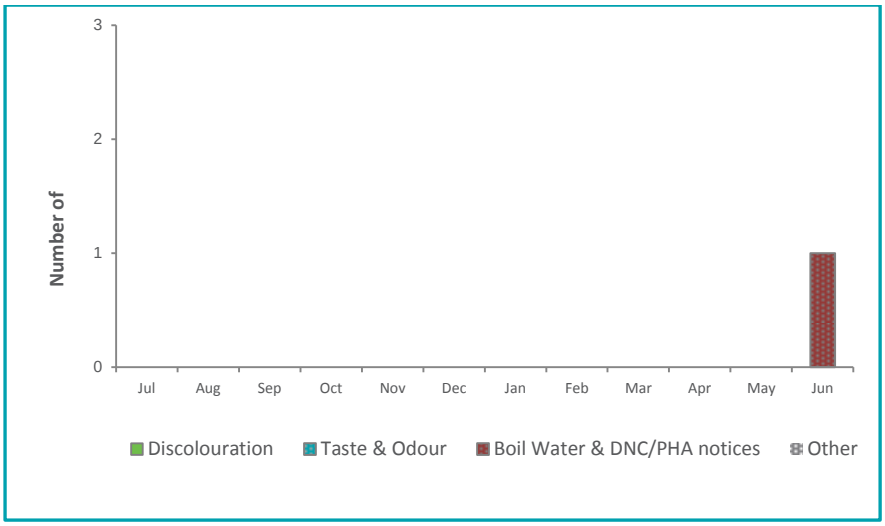
Metals – health regulated parameters (2016–17)								
Parameter	Limit	Unit	Samples	Exceedances	Performance %	Mean	Min.	Max.
Antimony	0.003	mg/L	4	0	100	<0.0005	<0.0005	<0.0005
Arsenic	0.01	mg/L	4	0	100	0.0007	0.0004	<0.001
Barium	2	mg/L	4	0	100	0.0023	0.002	0.0025
Cadmium	0.002	mg/L	4	0	100	0.0001	<0.0001	0.0001
Chromium	0.05	mg/L	4	0	100	0.0004	0.0002	<0.001
Copper	2	mg/L	4	0	100	0.0152	0.0094	0.0205
Lead	0.01	mg/L	4	0	100	0.0008	0.0005	0.0009
Manganese	0.5	mg/L	4	0	100	0.0252	0.003	0.0572
Mercury	0.001	mg/L	4	0	100	0.00004	<0.00003	<0.00005
Molybdenum	0.05	mg/L	4	0	100	0.0002	<0.0001	<0.0005
Nickel	0.02	mg/L	4	0	100	0.0003	<0.0001	<0.0005
Selenium	0.01	mg/L	4	0	100	0.0006	<0.0001	<0.002

6.18.5. Analysis of overall system performance (2016-17)

Table 6.18.5-a General physical performance 2016-17

General physical parameters (2016-17)					
Parameter	**Unit**	**Guideline Value**	**Mean**	**Min**	**Max**
Chlorine residual	mg/L	0.1 - <0.8	0.59	0.00	1.13
Colour True	HU	15	34.7	5	63
pH	Units	6.5 – 8.5	6.88	5.30	7.88
Turbidity	NTU	1	1.00	0.19	4.25

Figure 6.18.5-b Customer complaints by month and type.



6.19. Distillery Creek drinking water system

6.19.1. Summary of system status

Distillery Creek drinking water system	
System status (as at 30 June 2017)	Potable
Total number of connections	18388
Fluoride	Fluorosilicic acid

Performance overview against health targets (2016-17)

Indicator	Outcome	Compliant	Target	Sampling Events	Non-conformances
Microbiological	100.0%	☑	98.0%	459	0
Fluoride	100.0%	☑	100.0%	97	0
Metals	100.0%	☑	100.0%	4	0
DBPs	100.0%	☑	100.0%	3	0

on or below target within 10% of target greater than 10% outside target

Refer to 5.2 Performance indicators against health targets

Overall system performance (2016-17)

Indicator	Occurrences	Details
Customer complaints	50	Discoloured water, taste & odour.
Public health warnings issued	0	
System incidents & issues	0	
Catchment and water source issues	0	

Current and future planned infrastructure and operational changes

Project	Description	Progress	Est. Delivery	Est. Spend ($'000)
Distillery Creek Disinfection Project	Installation of UV disinfection or similar at the Distillery Creek WTP.	Planning	FY18/19	$196.68

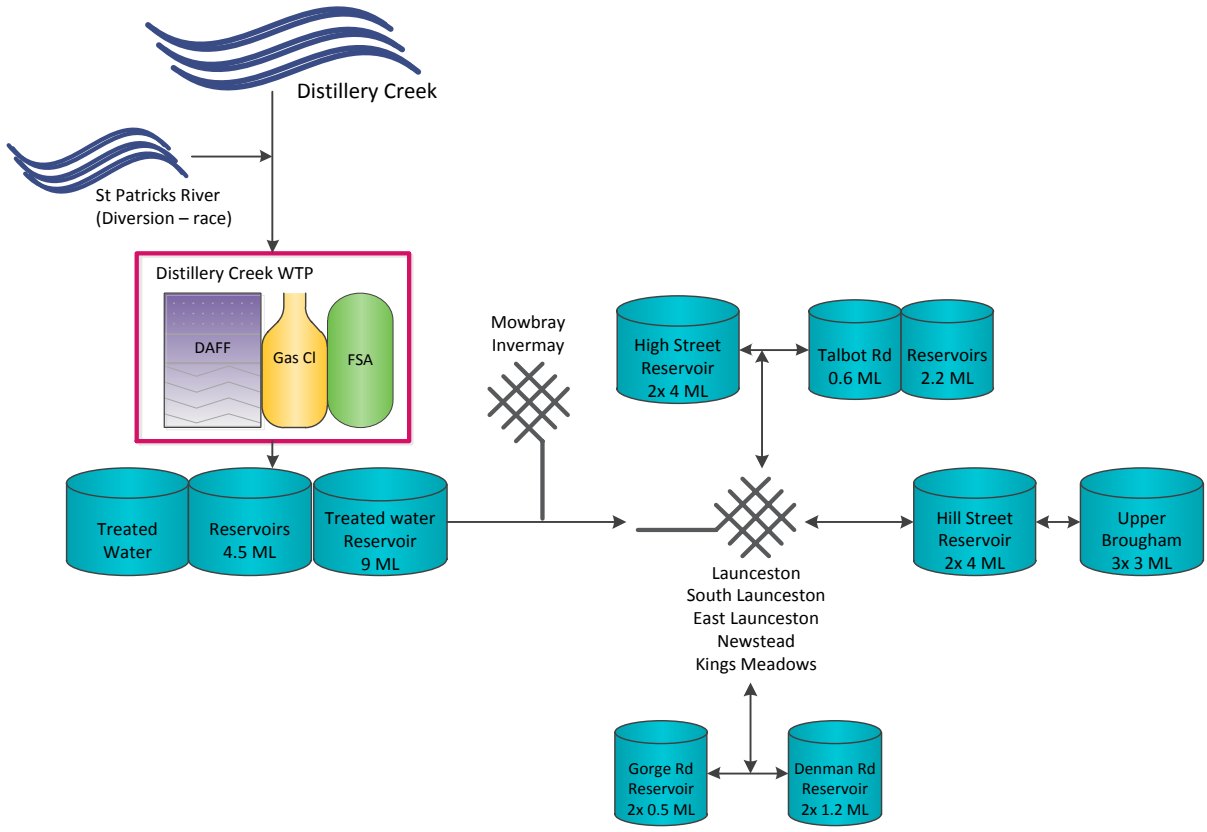


Figure 6.19.1-a Distillery Creek system schematic

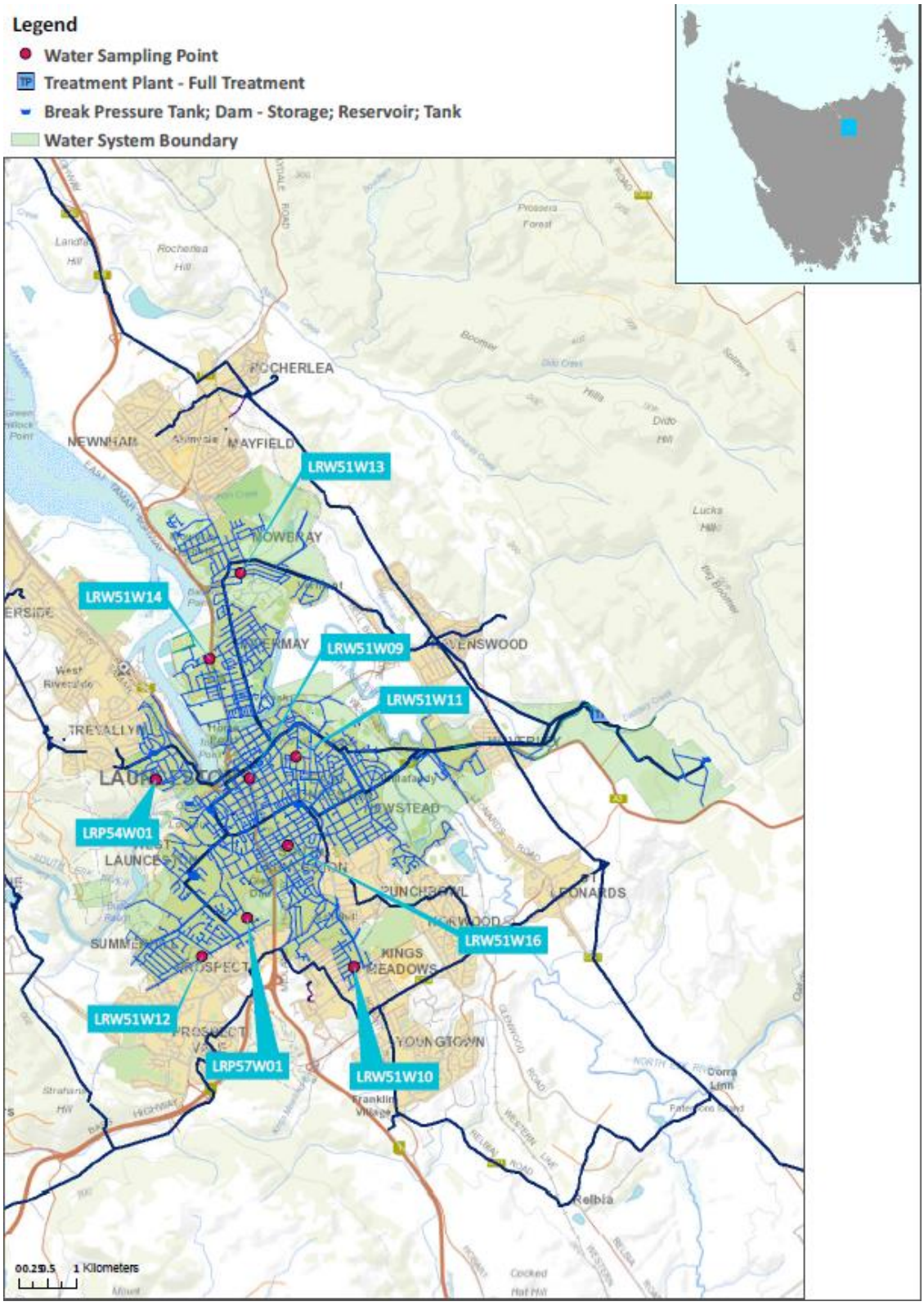


Figure 6.19.1-b Map of Distillery Creek monitoring system

6.19.2. Summary of Annual Reticulation Compliance (2016–17)

Table 6.19.2-a Compliance sampling program

Planned compliance sampling program (2016-17)								
Site name	Site Code	Micros	Metals	DBP	Fluoride (Field)	Fluoride (Lab)	Chemical Profile	Process Chemicals
Denman Rd PS	LRP54W01	W	n/a	n/a	n/a	n/a	n/a	n/a
Kings Meadows, 9/11 Blaydon St	LRW51W10	W	n/a	n/a	n/a	n/a	n/a	n/a
East Launceston, Crn High & Adelaide St	LRW51W11	W	n/a	n/a	n/a	n/a	n/a	n/a
Invermay, Mayne St	LRW51W14	W	n/a	n/a	n/a	n/a	n/a	n/a
Launceston, York Street Public Toilets	LRW51W09	W	n/a	n/a	n/a	n/a	n/a	n/a
Mowbray, 7 Derby St	LRW51W13	W	n/a	n/a	W	n/a	n/a	n/a
South Launceston, Mulgrave St Park	LRW51W16	W	Q	Q	W	M	Q	n/a
Summerhill, 194 Peel St	LRW51W12	W	n/a	n/a	n/a	n/a	n/a	n/a
West Launceston, Granville St	LRP57W01	W	n/a	n/a	n/a	n/a	n/a	n/a
Number Planned Samples		**459**	**4**	**4**	**104**	**12**	**4**	**0**
Number Samples Tested		**459**	**4**	**3***	**97**	**12**	**4**	**0**

- Treatment Plant, Res Outflow DRW51W01 sampled 4/7/2016 instead of LPR54W01
- East Launceston, High St Pump Station LRP52W01 sampled 4/7/2016 instead of LRW51W11
- Mowbray, Vermont Bridge LRW51W08 sampled 4/7/2016 instead of LRW51W13
- West Launceston, Cambridge St. Bus Shelter LRW51W15 sampled 4/7/2016 instead of LRP57W01
- * LRW51W16: South Launceston, Mulgrave St Park - Missing DBP from 6/3/17

6.19.3. Summary of current and historic performance (2012-17)

Table 6.19.3-a Historical health performance overview (5 year comparison)

Historical health performance overview (5 year comparison)					
Indicator	**2012-13**	**2013-14**	**2014-15**	**2015-16**	**2016-17**
Microbiological	100.0%	99.0%	99.0%	100.0%	100.0%
Fluoride	100.0%	100.0%	100.0%	100.0%	100.0%
Metals	98.0%	100.0%	100.0%	100.0%	100.0%
Disinfection by products	100.0%	100.0%	100.0%	100.0%	100.0%

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

Table 6.19.3-b Distribution fluoride testing overview (5 year comparison)

Distribution fluoride testing overview (5 year comparison)					
Indicator	**2012-13**	**2013-14**	**2014-15**	**2015-16**	**2016-17**
Exceeding 1.5 mg/L	Not recorded	Not recorded	0	0	0
Within target range (%)	Not recorded	Not recorded	100.0%	58.0%	51.5%
Mean dose (mg/L)	Not recorded	Not recorded	1.0	0.67	0.55

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

6.19.4. Analysis of current health performance (2016-17)

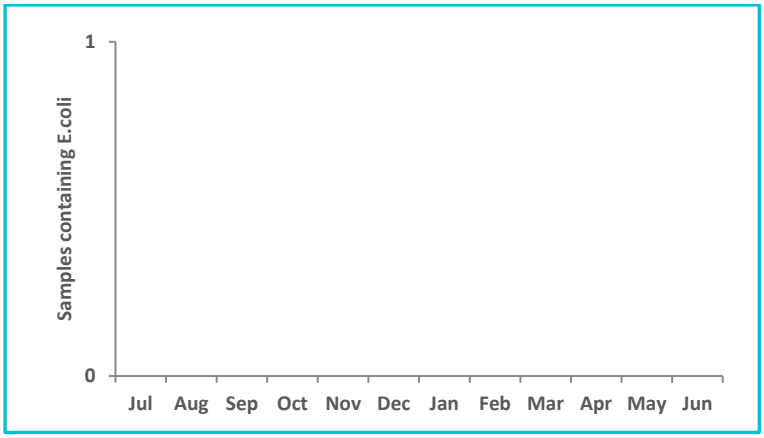


Figure 6.19.4-a Microbiological non-compliances by month (2016-17)

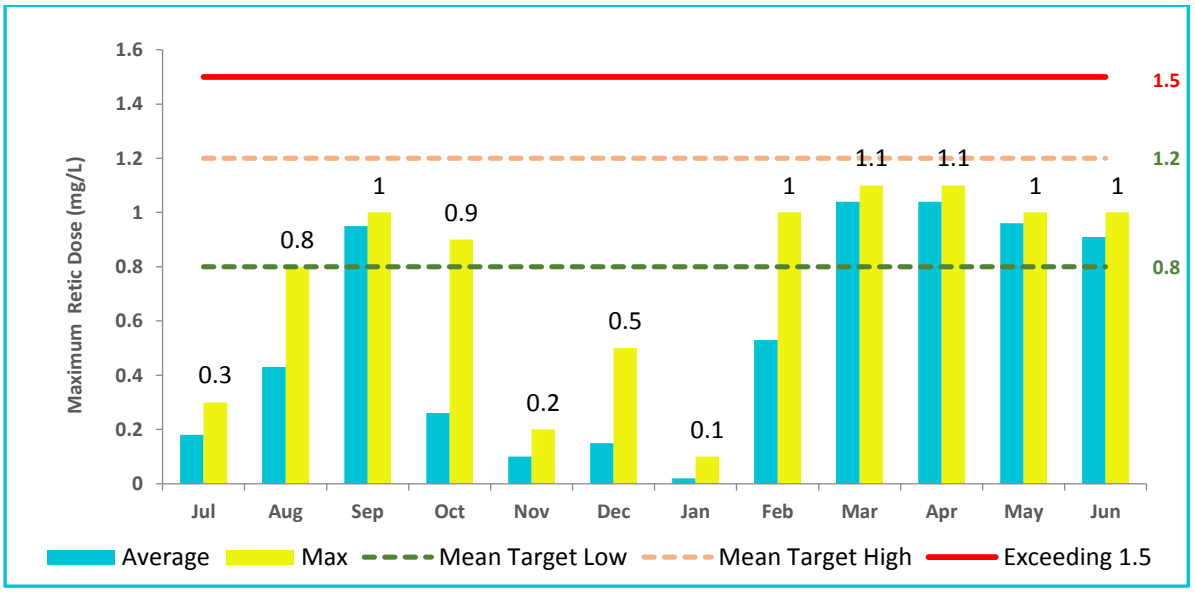


Figure 6.19.4-b Average reticulation fluoride dose by month (2016-17)

Table 6.19.4-a Metals performance 2016-17

Metals – health regulated parameters (2016–17)								
Parameter	Limit	Unit	Samples	Exceedances	Performance %	Mean	Min.	Max.
Antimony	0.003	mg/L	4	0	100	<0.0005	<0.0005	<0.0005
Arsenic	0.01	mg/L	4	0	100	0.0005	<0.0003	<0.001
Barium	2	mg/L	4	0	100	0.0091	0.0074	0.0122
Cadmium	0.002	mg/L	4	0	100	<0.0001	<0.0001	<0.0001
Chromium	0.05	mg/L	4	0	100	0.0003	<0.0001	<0.001
Copper	2	mg/L	4	0	100	0.0083	0.0022	0.019
Lead	0.01	mg/L	4	0	100	0.0002	<0.0001	<0.0005
Manganese	0.5	mg/L	4	0	100	0.0039	0.0012	0.0064
Mercury	0.001	mg/L	4	0	100	0.00007	<0.00003	0.00012
Molybdenum	0.05	mg/L	4	0	100	0.0002	<0.0001	<0.0005
Nickel	0.02	mg/L	4	0	100	0.0002	<0.0001	<0.0005
Selenium	0.01	mg/L	4	0	100	0.0006	<0.0001	<0.002

Table 6.19.4-b Disinfection by product performance 2016-17

Disinfection by products – health regulated parameters (2016–17)								
Parameter	Limit	Unit	Samples	Exceedances	Performance %	Mean	Min.	Max.
Dichloroacetic acid	100	µg/L	3	0	100	5.67	5	6
Monochloroacetic acid	150	µg/L	3	0	100	<5	<3	<5
Trichloroacetic acid	100	µg/L	3	0	100	5	5	5
Total trihalomethanes	250	µg/L	3	0	100	15.33	12	18

- * DBP missing from 6/3/17 for site LRW51W16: South Launceston, Mulgrave St Park.

6.19.5. Analysis of overall system performance (2016-17)

Table 6.19.5-a General physical performance 2016-17

General physical parameters (2016-17)					
Parameter	**Unit**	**Guideline Value**	**Mean**	**Min**	**Max**
Chlorine residual	mg/L	0.1 - <0.8	0.59	0.00	1.13
Colour True	HU	15	<1	<1	<1
pH	Units	6.5 – 8.5	7.10	6.80	9.98
Turbidity	NTU	1	0.30	0.13	14.60

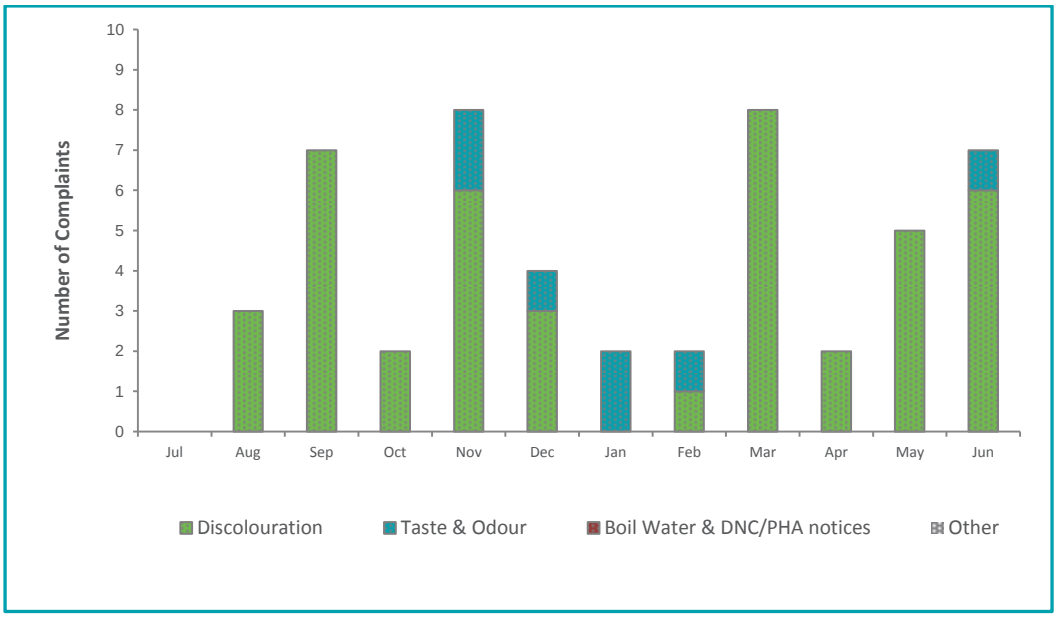


Figure 6.19.5-b Customer complaints by month and type

6.20. Dover drinking water system

6.20.1. Summary of system status

Dover drinking water system	
System status (as at 30 June 2017)	Potable
Total number of connections	729
Fluoride	Sodium fluoride

Performance overview against health targets (2016-17)

Indicator	Outcome	Compliant	Target	Sampling Events	Non-conformances
Microbiological	100.0%	☑	98.0%	52	0
Fluoride	100.0%	☑	100.0%	104	0
Metals	100.0%	☑	100.0%	4	0
DBPs	100.0%	☑	100.0%	4	0

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

Overall system performance (2016-17)

Indicator	Occurrences	Details
Customer complaints	1	Taste & odour.
Public health warnings issued	0	
System incidents & issues	0	
Catchment and water source issues	0	

Current and future planned infrastructure and operational changes

Project	Description	Progress	Est. Delivery	Est. Spend
n/a	n/a	n/a	n/a	n/a

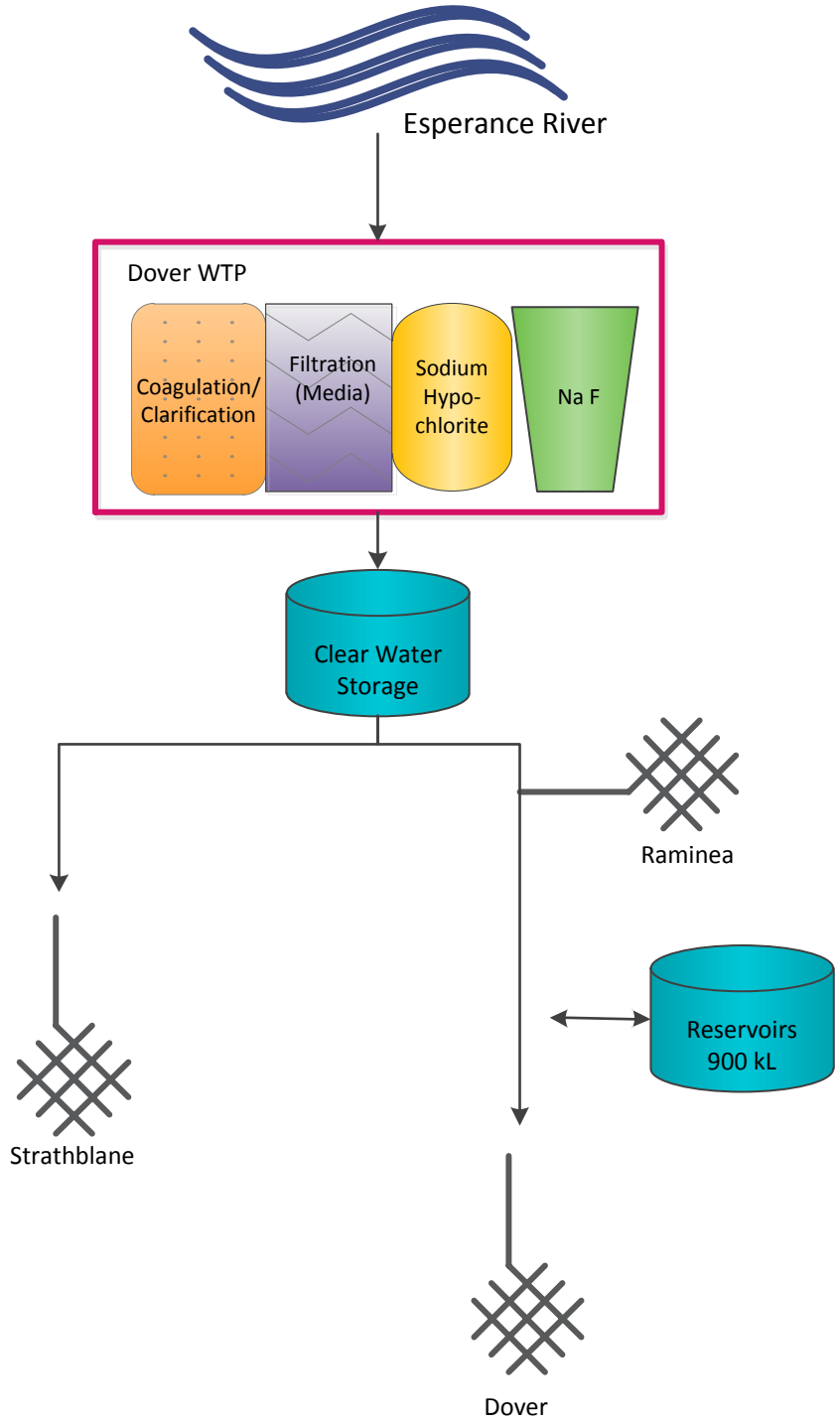


Figure 6.20.1-a Dover system schematic

Figure 6.20.1-b Map of Dover monitoring system

6.20.2. Summary of Annual Reticulation Compliance (2016–17)

Table 6.20.2-a Compliance sampling program

Planned compliance sampling program (2016-17)								
Site name	Site Code	Micros	Metals	DBP	Fluoride (Field)	Fluoride (Lab)	Chemical Profile	Process Chemicals
Dover/Sample Tap	DOSTE37	W	Q	Q	W	M	Q	n/a
Dover/No.4 P/S Kent Beach Rd	DOSTE38	n/a	n/a	n/a	W	n/a	n/a	n/a
Number Planned Samples		**52**	**4**	**4**	**104**	**12**	**8**	**0**
Number Samples Tested		**52**	**4**	**4**	**104**	**12**	**8**	**0**

6.20.3. Summary of current and historic performance (2012-17)

Table 6.20.3-a Historical health performance overview (5 year comparison)

Historical health performance overview (5 year comparison)					
Indicator	2012-13	2013-14	2014-15	2015-16	2016-17
Microbiological	98.0%	100.0%	100.0%	100.0%	100.0%
Fluoride	100.0%	100.0%	100.0%	100.0%	100.0%
Metals	100.0%	100.0%	100.0%	100.0%	100.0%
Disinfection by products	100.0%	100.0%	100.0%	100.0%	100.0%

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

Table 6.20.3-b Distribution fluoride testing overview (5 year comparison)

Distribution fluoride testing overview (5 year comparison)					
Indicator	**2012-13**	**2013-14**	**2014-15**	**2015-16**	**2016-17**
Exceeding 1.5 mg/L	0	0	0	0	0
Within target range (%)	Not required	Not required	86.3%	92.4%	91.2%
Mean dose (mg/L)	Not required	Not required	1.02	0.97	1.01

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

6.20.4. Analysis of current health performance (2016-17)

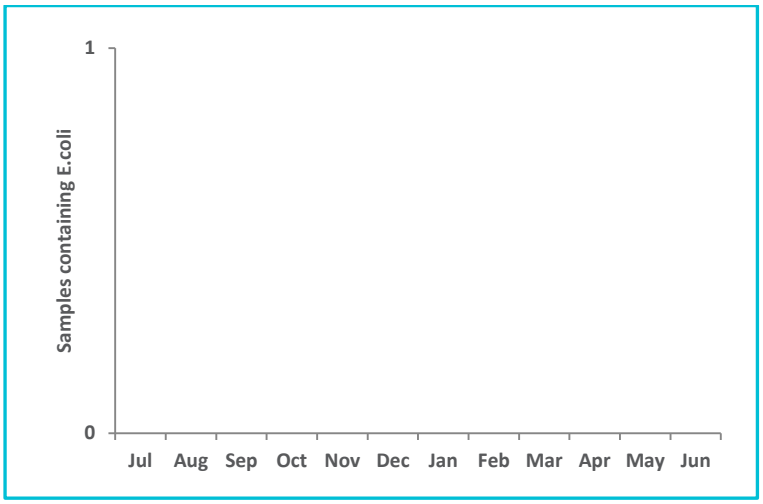


Figure 6.20.4-a Microbiological non-compliances by month (2016-17)

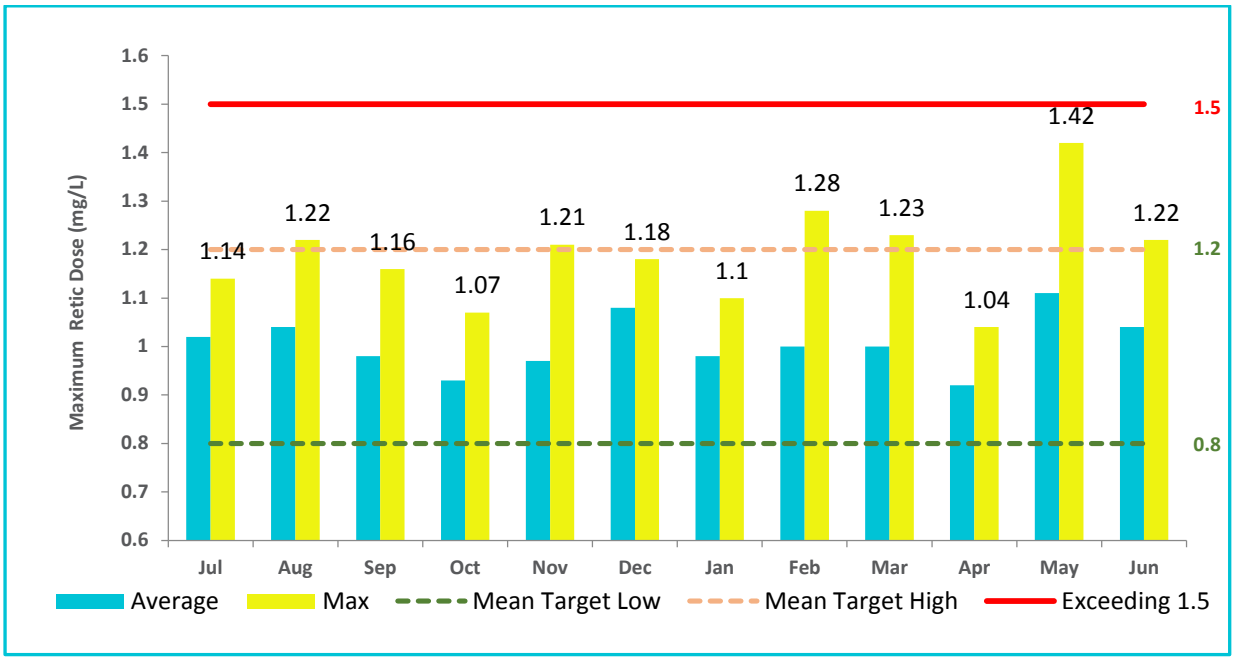


Figure 6.20.4-b Average reticulation fluoride dose by month (2016-17)

Table 6.20.4-a Metals performance 2016-17

Metals – health regulated parameters (2016–17)								
Parameter	**Limit**	**Unit**	**Samples**	**Exceedances**	**Performance %**	**Mean**	**Min.**	**Max.**
Antimony	0.003	mg/L	4	0	100	<0.0005	<0.0005	<0.0005
Arsenic	0.01	mg/L	4	0	100	0.0005	<0.0003	<0.001
Barium	2	mg/L	4	0	100	0.0057	0.0053	0.006
Cadmium	0.002	mg/L	4	0	100	<0.0001	<0.0001	<0.0001
Chromium	0.05	mg/L	4	0	100	0.0004	<0.0001	<0.001
Copper	2	mg/L	4	0	100	0.012	0.0096	0.0157
Lead	0.01	mg/L	4	0	100	0.002	<0.0001	<0.0005
Manganese	0.5	mg/L	4	0	100	0.0024	0.0011	0.0032
Mercury	0.001	mg/L	4	0	100	0.00006	<0.00003	0.00011
Molybdenum	0.05	mg/L	4	0	100	0.002	<0.0001	<0.0005
Nickel	0.02	mg/L	4	0	100	0.003	<0.0001	<0.0005
Selenium	0.01	mg/L	4	0	100	0.0006	<0.0001	<0.002

Table 6.20.4-b Disinfection by product performance 2016-17

Disinfection by products – health regulated parameters (2016–17)								
Parameter	Limit	Unit	Samples	Exceedances	Performance %	Mean	Min.	Max.
Dichloroacetic acid	100	µg/L	4	0	100	5.88	<1	14
Monochloroacetic acid	150	µg/L	4	0	100	<5	<3	<5
Trichloroacetic acid	100	µg/L	4	0	100	10.5	6	15
Total trihalomethanes	250	µg/L	4	0	100	40.25	36	48

6.20.5. Analysis of overall system performance (2016-17)

Table 6.20.5-a General physical performance 2016-17

General physical parameters (2016-17)					
Parameter	Unit	Guideline Value	Mean	Min	Max
Chlorine residual	mg/L	0.1 - <0.8	0.07	0,01	0.45
Colour True	HU	15	2	2	2
pH	Units	6.5 – 8.5	7.25	6.78	7.83
Turbidity	NTU	1	0.50	0.22	0.79

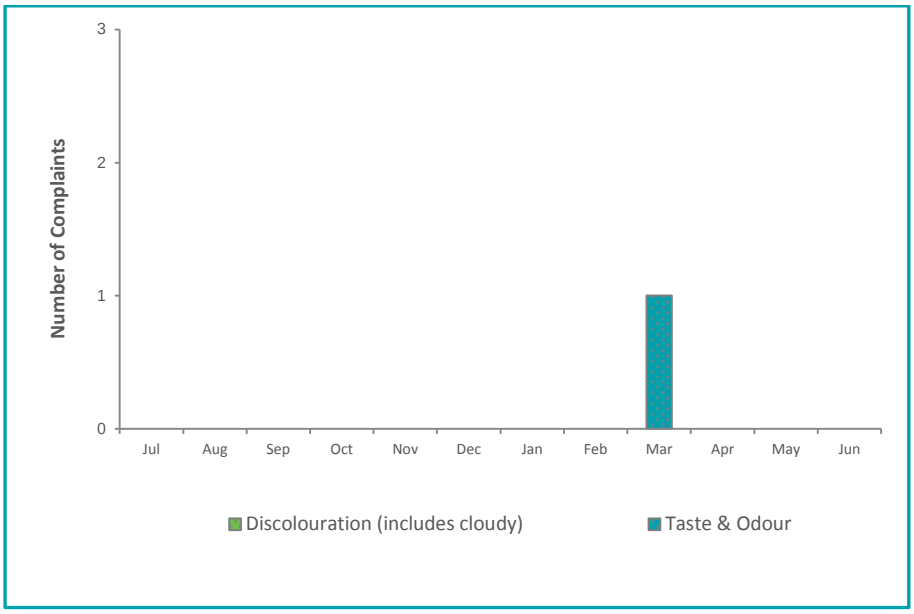


Figure 6.20.5-b Customer complaints by month and type

6.21. Dowlings Creek drinking water system

6.21.1. Summary of system status

Dowlings Creek drinking water system	
System status (as at 30 June 2017)	Potable
Total number of connections	104
Fluoride	n/a

Performance overview against health targets (2016-17)

Indicator	Outcome	Compliant	Target	Sampling Events	Non-conformances
Microbiological	100.0%	☑	98.0%	156	0
Fluoride	n/a	n/a	n/a	n/a	n/a
Metals	100.0%	☑	100.0%	16	0
DBPs	100.0%	☑	100.0%	4	0

on or below target within 10% of target greater than 10% outside target

Refer to 5.2 Performance indicators against health targets

Overall system performance (2016-17)

Indicator	Occurrences	Details
Customer complaints	1	Taste & odour.
Public health warnings issued	0	
System incidents & issues	0	
Catchment and water source issues	0	

Current and future planned infrastructure and operational changes

Project	Description	Progress	Est. Delivery	Est. Spend
n/a	n/a	n/a	n/a	n/a

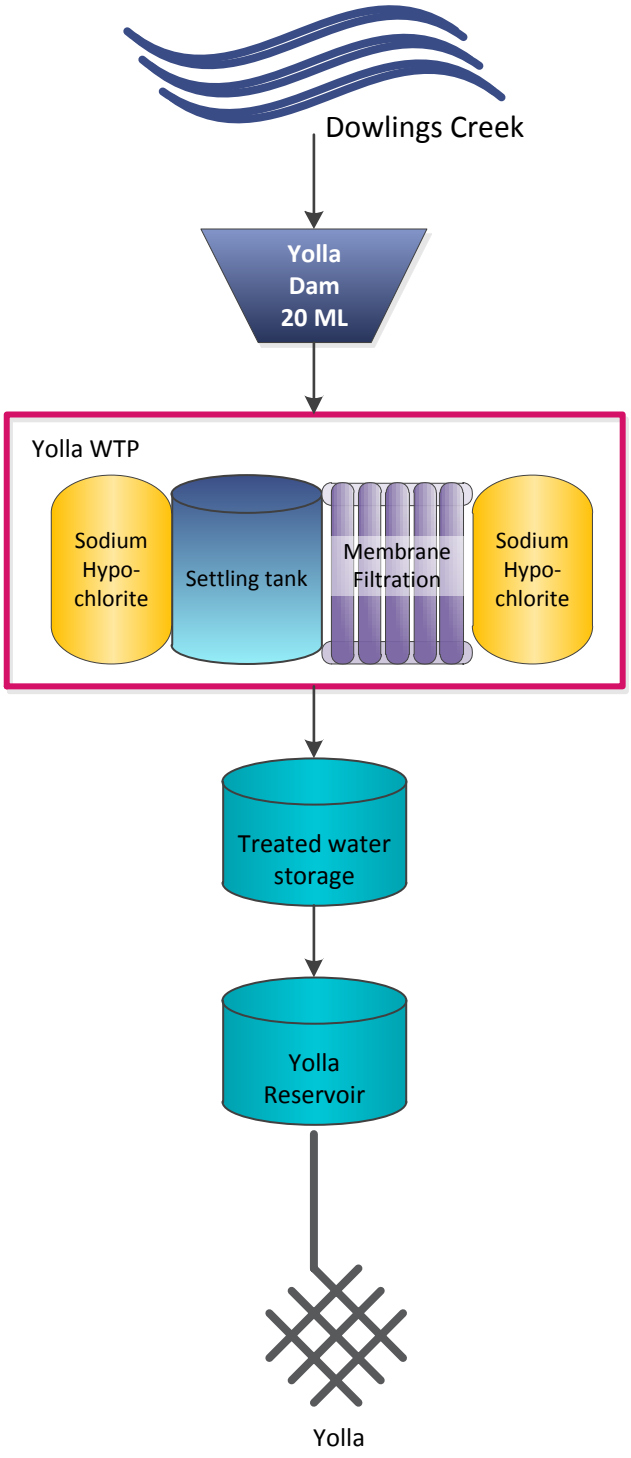


Figure 6.21.1-a Dowlings Creek system schematic

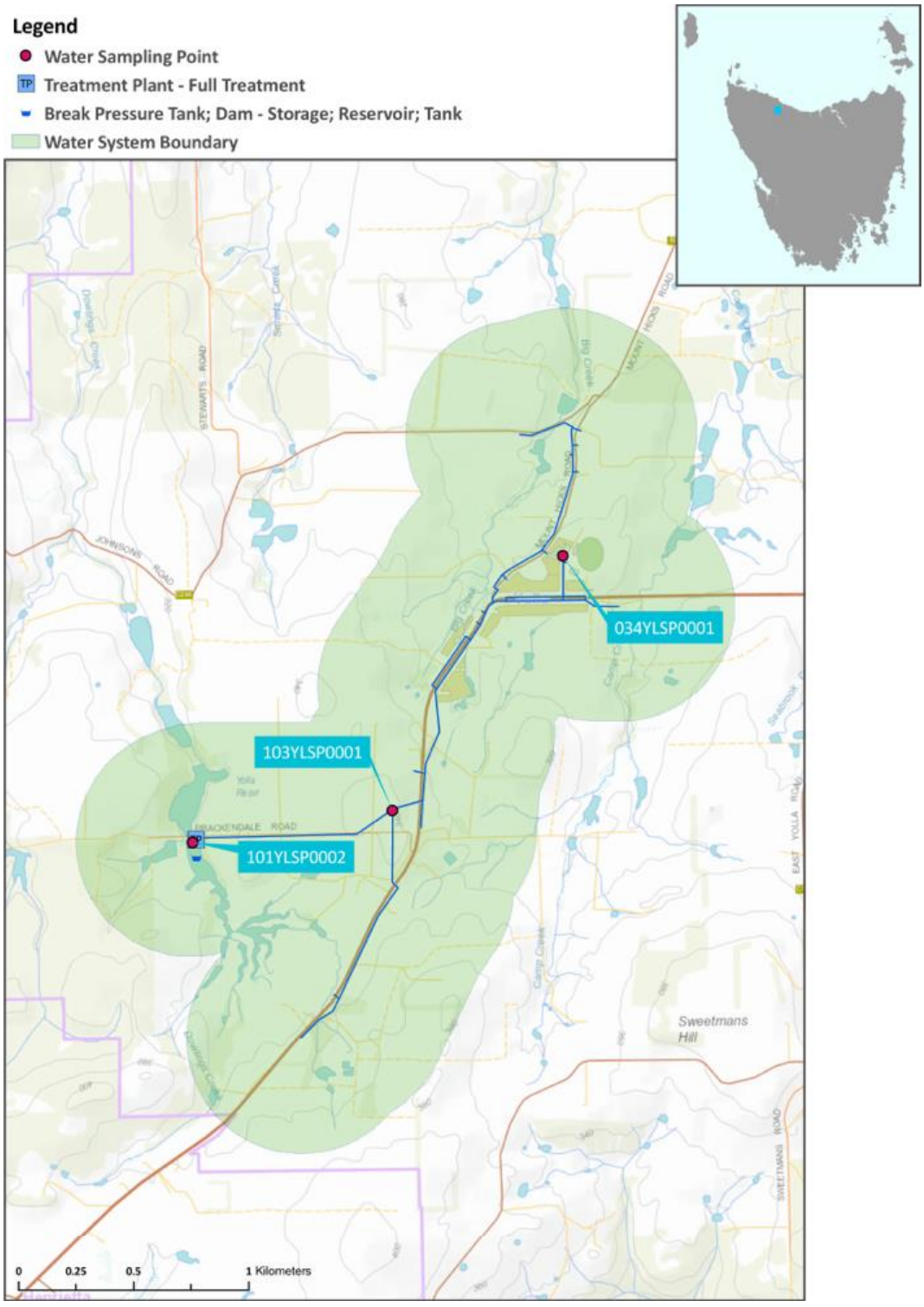


Figure 6.21.1-b Map of Dowlings Creek monitoring system

6.21.2. Summary of Annual Reticulation Compliance (2016–17)

Table 6.21.2-a Compliance sampling program

Planned compliance sampling program (2016-17)								
Site name	Site Code	Micros	Metals	DBP	Fluoride (Field)	Fluoride (Lab)	Chemical Profile	Process Chemicals
Yolla/School Sample Point	034YLSP0001	W	Q	Q	n/a	n/a	Q	n/a
Yolla/WTP Outlet Sample Point	101YLSP0002	W	n/a	n/a	n/a	n/a	n/a	M
Yolla/Reservoir Sample Point	103YLSP0001	W	n/a	n/a	n/a	n/a	n/a	n/a
Number Planned Samples		**156**	**4**	**4**	**0**	**0**	**4**	**12**
Number Samples Tested		**156**	**4**	**4**	**0**	**0**	**4**	**12**

6.21.3. Summary of current and historic performance (2012-17)

Table 6.21.3-a Historical health performance overview (5 year comparison)

Historical health performance overview (5 year comparison)					
Indicator	2012-13	2013-14	2014-15	2015-16	2016-17
Microbiological	100.0%	100.0%	100.0%	99.3%	100.0%
Fluoride	n/a	n/a	n/a	n/a	n/a
Metals	n/a	100.0%	100.0%	99.3%	100.0%
Disinfection by products	n/a	100.0%	100.0%	100.0%	100.0%

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

6.21.4. Analysis of current health performance (2016-17)

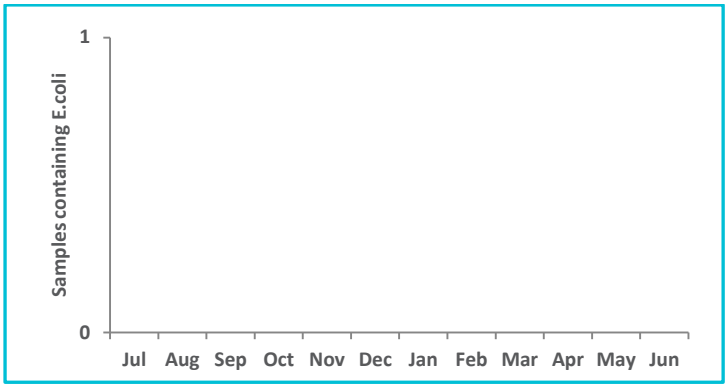


Figure 6.21.4-a Microbiological non-compliances by month (2016-17)

Table 6.21.4-a Metals performance 2016-17

Metals – health regulated parameters (2016–17)								
Parameter	Limit	Unit	Samples	Exceedances	Performance %	Mean	Min.	Max.
Antimony	0.003	mg/L		0	100	<0.0005	<0.0005	<0.0005
Arsenic	0.01	mg/L		0	100	0.00071	0.0003	<0.001
Barium	2	mg/L		0	100	0.0202	0.013	0.0246
Cadmium	0.002	mg/L		0	100	0.0001	<0.0001	0.0002
Chromium	0.05	mg/L		0	100	0.0005	<0.0001	<0.001
Copper	2	mg/L		0	100	0.006	0.0041	0.008
Lead	0.01	mg/L		0	100	0.0003	<0.0001	<0.0005
Manganese	0.5	mg/L		0	100	0.0105	0.0016	0.0484
Mercury	0.001	mg/L		0	100	0.00006	<0.00003	0.00013
Molybdenum	0.05	mg/L		0	100	0.0003	<0.0001	<0.0005
Nickel	0.02	mg/L		0	100	0.0006	<0.0001	0.0036
Selenium	0.01	mg/L		0	100	0.00096	<0.0001	<0.002

Monthly metals (except Mercury) missing in April and June 2017 for site 101YLSP0002 - Yolla/WTP Outlet Sample Point.

Table 6.21.4-b Disinfection by product performance 2016-17

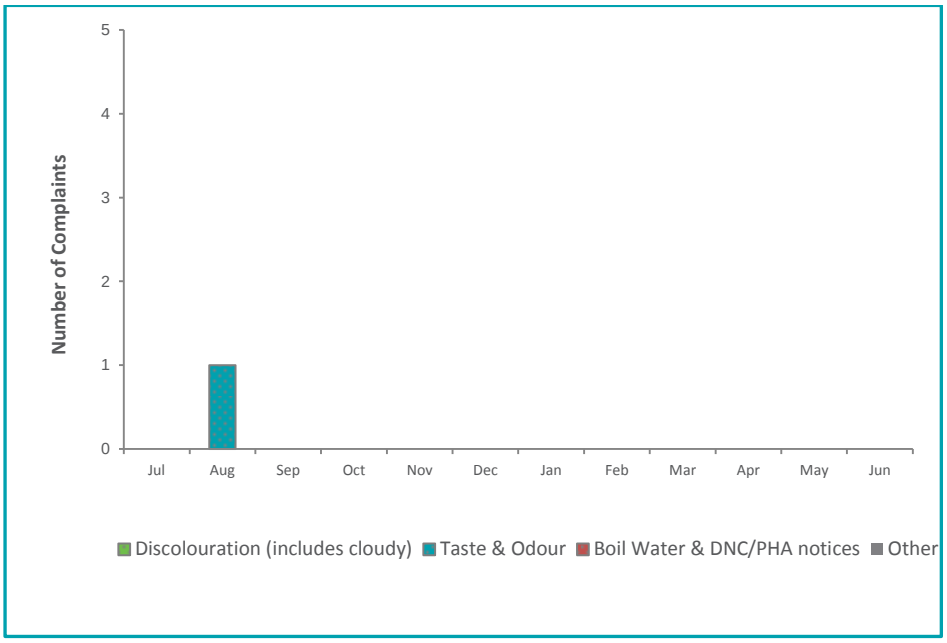
Disinfection by products – health regulated parameters (2016–17)								
Parameter	Limit	Unit	Samples	Exceedances	Performance %	Mean	Min.	Max.
Dichloroacetic acid	100	µg/L	4	0	100	24.75	18	32
Monochloroacetic acid	150	µg/L	4	0	100	<5	<3	<5
Trichloroacetic acid	100	µg/L	4	0	100	37.25	20	52
Total trihalomethanes	250	µg/L	4	0	100	77.75	55	114

6.21.5. Analysis of overall system performance (2016-17)

Table 6.21.5-a General physical performance 2016-17

General physical parameters (2016-17)					
Parameter	Unit	Guideline Value	Mean	Min	Max
Chlorine residual	mg/L	0.1 - <0.8	0.90	0.09	2.24
Colour True	HU	15	2.5	2	3
pH	Units	6.5 – 8.5	7.23	6.56	7.78
Turbidity	NTU	1	0.23	0.11	0.85

Figure 6.21.5-a Customer complaints by month and type.



6.22. Ellendale drinking water system

6.22.1. Summary of system status

Ellendale drinking water system	
System status (as at 30 June 2017)	Potable
Total number of connections	83
Fluoride	n/a

Performance overview against health targets (2016-17)

Indicator	Outcome	Compliant	Target	Sampling Events	Non-conformances
Microbiological	100.0%	☑	98.0%	52	0
Fluoride	n/a	n/a	n/a	n/a	n/a
Metals	100.0%	☑	100.0%	4	0
DBPs	95.8%	☒	100.0%	12	2

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

Overall system performance (2016-17)

Indicator	Occurrences	Details
Customer complaints	0	
Public health warnings issued	0	
System incidents & issues	2	DBP exceedances.
Catchment and water source issues	0	

Current and future planned infrastructure and operational changes

Project	Description	Progress	Est. Delivery	Est. Spend
n/a	n/a	n/a	n/a	n/a

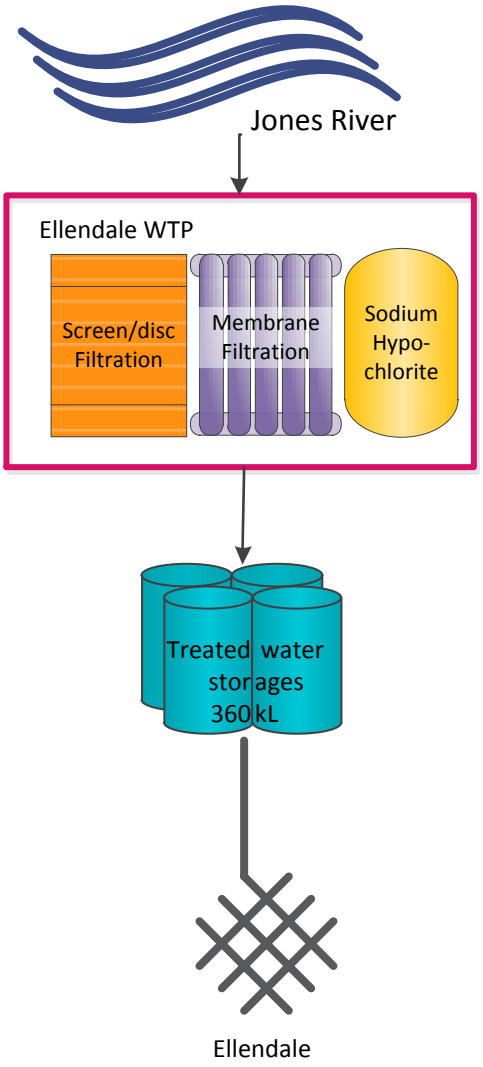


Figure 6.22.1-a Ellendale system schematic

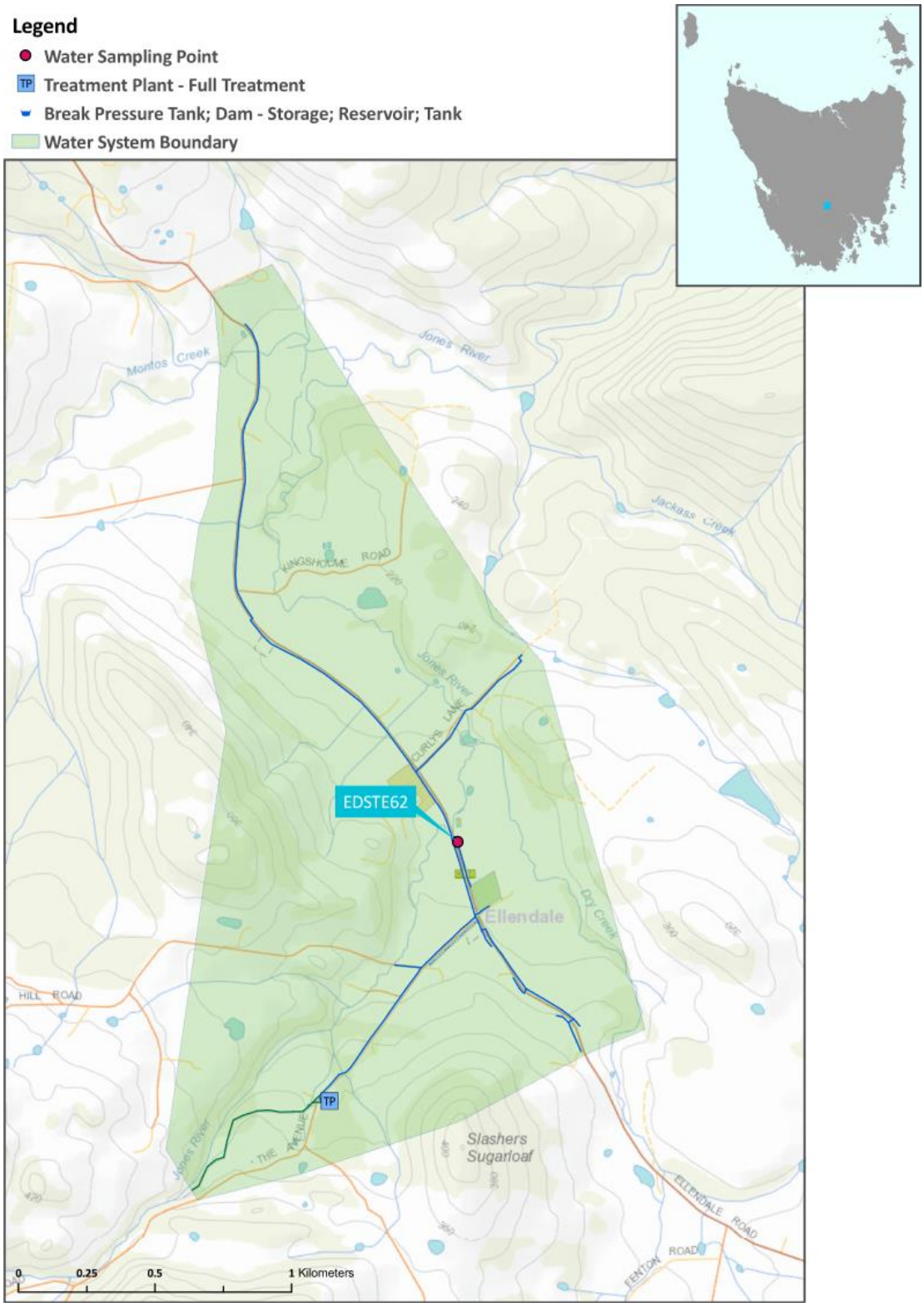


Figure 6.22.1-b Map of Ellendale monitoring system

6.22.2. Summary of Annual Reticulation Compliance (2016–17)

Table 6.22.2-a Compliance sampling program

Planned compliance sampling program (2016-17)								
Site name	Site Code	Micros	Metals	DBP	Fluoride (Field)	Fluoride (Lab)	Chemical Profile	Process Chemicals
Ellendale/Sample Tap	EDSTE62	W	Q	M	n/a	n/a	Q	n/a
Number Planned Samples		**52**	**4**	**12**	**0**	**0**	**4**	**0**
Number Samples Tested		**52**	**4**	**12**	**0**	**0**	**4**	**0**

6.22.3. Summary of current and historic performance (2012-17)

Table 6.22.3-a Historical health performance overview (5 year comparison)

Historical health performance overview (5 year comparison)					
Indicator	**2012-13**	**2013-14**	**2014-15**	**2015-16**	**2016-17**
Microbiological	80.0%	100.0%	100.0%	100.0%	100.0%
Fluoride	n/a	n/a	n/a	n/a	n/a
Metals	100.0%	100.0%	100.0%	100.0%	100.0%
Disinfection by products	93.7%	100.0%	100.0%	95.0%	95.8%

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

6.22.4. Analysis of current health performance (2016-17)

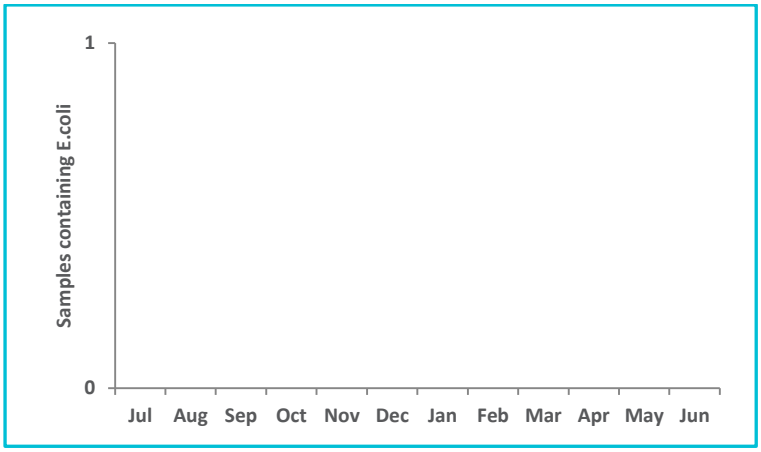


Figure 6.22.4-a Microbiological non-compliances by month (2016-17)

Table 6.22.4-a Metals performance 2016-17

Metals – health regulated parameters (2016–17)								
Parameter	Limit	Unit	Samples	Exceedances	Performance %	Mean	Min.	Max.
Antimony	0.003	mg/L	4	0	100	<0.0005	<0.0005	<0.0005
Arsenic	0.01	mg/L	4	0	100	0.0005	<0.0003	<0.001
Barium	2	mg/L	4	0	100	0.0048	0.0045	0.005
Cadmium	0.002	mg/L	4	0	100	<0.0001	<0.0001	<0.0001
Chromium	0.05	mg/L	4	0	100	0.0005	0.0003	<0.001
Copper	2	mg/L	4	0	100	0.0019	<0.0001	0.0029
Lead	0.01	mg/L	4	0	100	0.0002	<0.0001	<0.0005
Manganese	0.5	mg/L	4	0	100	0.0007	0.0005	0.001
Mercury	0.001	mg/L	4	0	100	0.00004	<0.00003	<0.00005
Molybdenum	0.05	mg/L	4	0	100	0.0002	<0.0001	<0.0005
Nickel	0.02	mg/L	4	0	100	0.0002	<0.0001	<0.0005
Selenium	0.01	mg/L	4	0	100	0.0006	<0.0001	<0.002

Table 6.22.4-b Disinfection by product performance 2016-17

Disinfection by products – health regulated parameters (2016–17)								
Parameter	Limit	Unit	Samples	Exceedances	Performance %	Mean	Min.	Max.
Dichloroacetic acid	100	µg/L	12	0	100	15.63	<1	30
Monochloroacetic acid	150	µg/L	12	0	100	<5	<3	<5
Trichloroacetic acid	100	µg/L	12	2	83	75.33	42	140
Total trihalomethanes	250	µg/L	12	0	100	128	82	210

- * DBPs were detected above the ADWG health limits in July 2016 and October 2016. The Ellendale system does not have the ability to remove dissolved organic matter from the raw water and is therefore susceptible to DBP formation. Further work is occurring in optimising the system so that water is not extracted when the organic load is high. In accordance with the advice in the ADWG chlorine residuals are maintained to provide appropriate disinfection.

6.22.5. Analysis of overall system performance (2016-17)

Table 6.22.5-a General physical performance 2016-17

General physical parameters (2016-17)					
Parameter	Unit	Guideline Value	Mean	Min	Max
Chlorine residual	mg/L	0.1 - <0.8	0.20	0.02	0.55
Colour True	HU	15	5	3	7
pH	Units	6.5 – 8.5	7.49	6.23	7.95
Turbidity	NTU	1	0.26	0.07	0.60

6.23. Epping Forest drinking water system

6.23.1. Summary of system status

Epping Forest drinking water system	
System status (as at 30 June 2017)	BWA
Total number of connections	28
Fluoride	n/a

Performance overview against health targets (2016-17)

Indicator	Outcome	Compliant	Target	Sampling Events	Non-conformances
Microbiological	100.0%	☑	98.0%	52	0
Fluoride	n/a	n/a	n/a	n/a	n/a
Metals	100.0%	☑	100.0%	4	0
DBPs	75%	☒	100.0%	4	4

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

Overall system performance (2016-17)

Indicator	Occurrences	Details
Customer complaints	2	Boil water & DNC alerts.
Public health warnings issued	0	
System incidents & issues	4	DBP exceedances.
Catchment and water source issues	1	Trace levels of pesticides were collected in the catchment. All results were well below the ADWG health limits.

Current and future planned infrastructure and operational changes

Project	Description	Progress	Est. Delivery	Est. Spend ($'000)
Epping Water supply system	Treated water supply to the community of Epping Forest.	Tender	FY17/18	$1,212.97

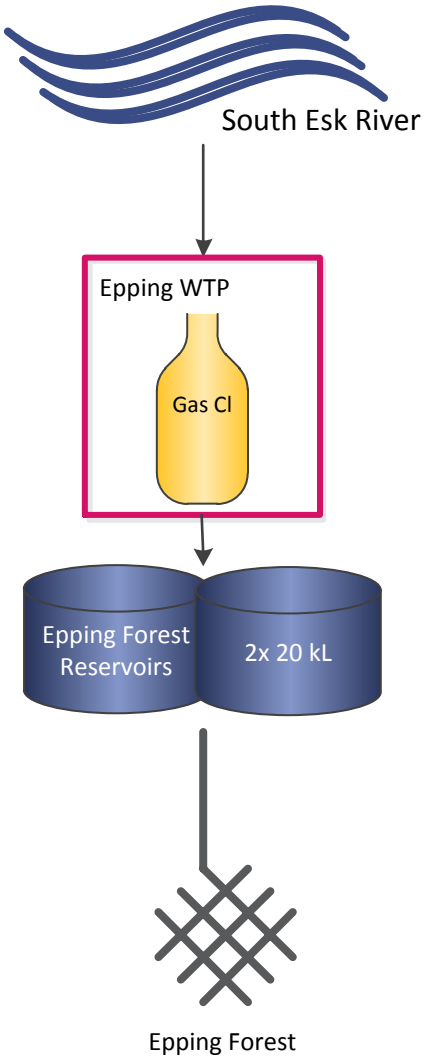


Figure 6.23.1-a Epping Forest system schematic

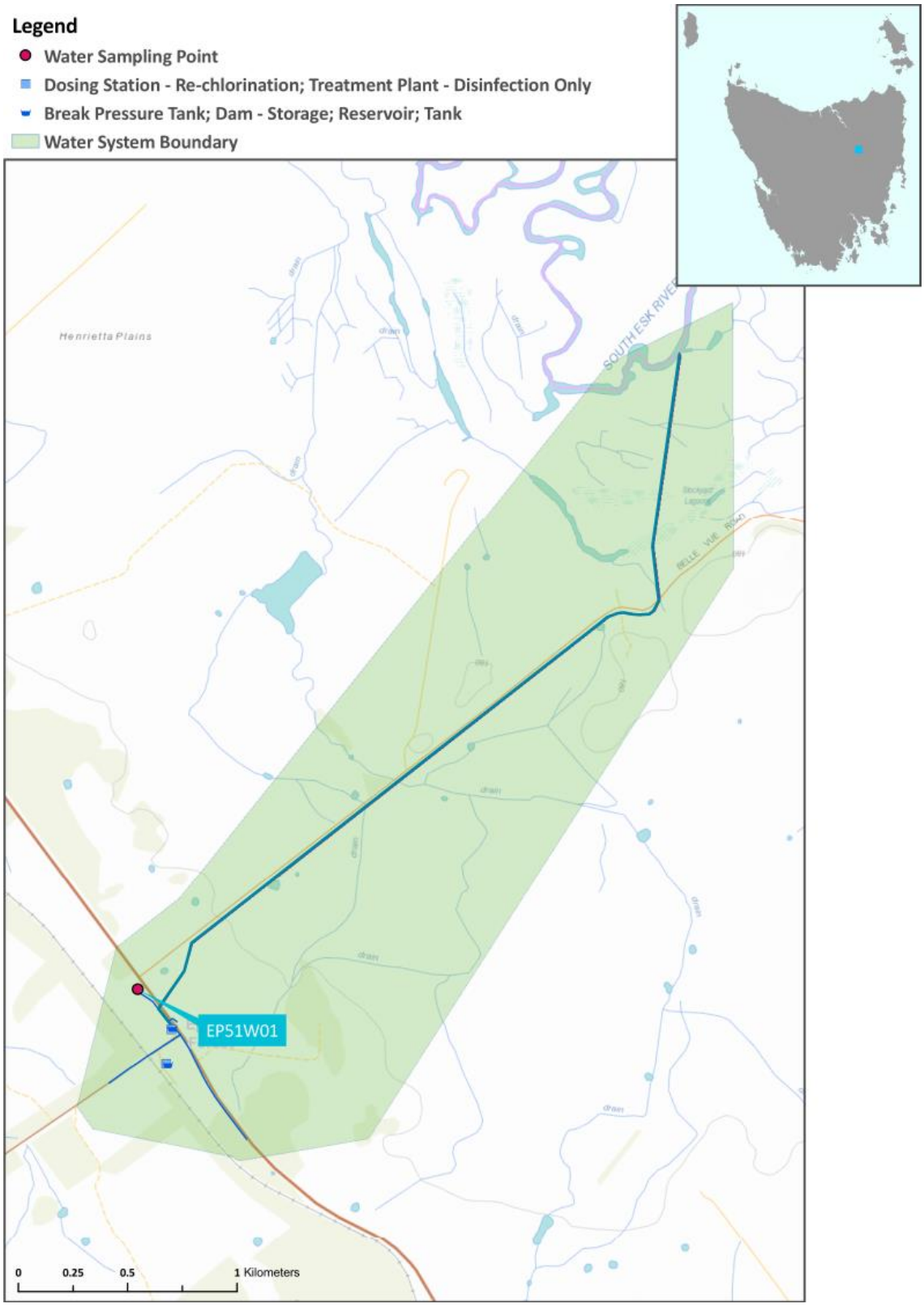


Figure 6.23.1-b Map of Epping monitoring system

6.23.2. Summary of Annual Reticulation Compliance (2016–17)

Table 6.23.2-a Compliance sampling program

Planned compliance sampling program (2016-17)								
Site name	Site Code	Micros	Metals	DBP	Fluoride (Field)	Fluoride (Lab)	Chemical Profile	Process Chemicals
Epping/Epping Forest, Behind Hall	EP51W01	W	Q	Q	n/a	n/a	Q	n/a
Number Planned Samples		**52**	**4**	**4**	**0**	**0**	**4**	**0**
Number Samples Tested		**52**	**4**	**4**	**0**	**0**	**4**	**0**

6.23.3. Summary of current and historic performance (2012-17)

Table 6.23.3-a Historical health performance overview (5 year comparison)

Historical health performance overview (5 year comparison)					
Indicator	2012-13	2013-14	2014-15	2015-16	2016-17
Microbiological	100.0%	100.0%	96.0%	96.2%	100.0%
Fluoride	n/a	n/a	n/a	n/a	n/a
Metals	100.0%	100.0%	100.0%	100.0%	100.0%
Disinfection by products	100.0%	100.0%	100.0%	88.0%	75.0%

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

6.23.4. Analysis of current health performance (2016-17)

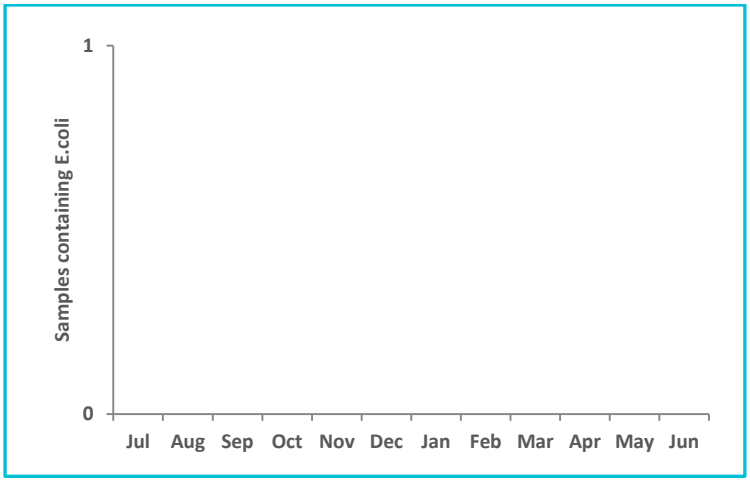


Figure 6.23.4-a Microbiological non-compliances by month (2016-17)

Table 6.23.4-a Metals performance 2016-17

Metals – health regulated parameters (2016–17)								
Parameter	Limit	Unit	Samples	Exceedances	Performance %	Mean	Min.	Max.
Antimony	0.003	mg/L	4	0	100	<0.0005	<0.0005	<0.0005
Arsenic	0.01	mg/L	4	0	100	0.0007	0.0004	<0.001
Barium	2	mg/L	4	0	100	0.0107	0.0088	0.0147
Cadmium	0.002	mg/L	4	0	100	0.0003	0.0003	0.0004
Chromium	0.05	mg/L	4	0	100	0.0008	0.0003	0.001
Copper	2	mg/L	4	0	100	0.0398	0.031	0.0472
Lead	0.01	mg/L	4	0	100	0.0021	0.0015	0.0033
Manganese	0.5	mg/L	4	0	100	0.0117	0.005	0.0174
Mercury	0.001	mg/L	4	0	100	0.00005	<0.00003	0.00006
Molybdenum	0.05	mg/L	4	0	100	0.0002	<0.0001	<0.0005
Nickel	0.02	mg/L	4	0	100	0.0009	0.0005	0.0013
Selenium	0.01	mg/L	4	0	100	0.003	<0.0001	0.0097

Table 6.23.4-b Disinfection by product performance 2016-17

Disinfection by products – health regulated parameters (2016–17)								
Parameter	Limit	Unit	Samples	Exceedances	Performance %	Mean	Min.	Max.
Dichloroacetic acid	100	µg/L	4	2	50	93.75	61	127
Monochloroacetic acid	150	µg/L	4	0	100	4.13	4	5
Trichloroacetic acid	100	µg/L	4	2*	50	106	51	169
Total trihalomethanes	250	µg/L	4	0	100	149.75	94	201

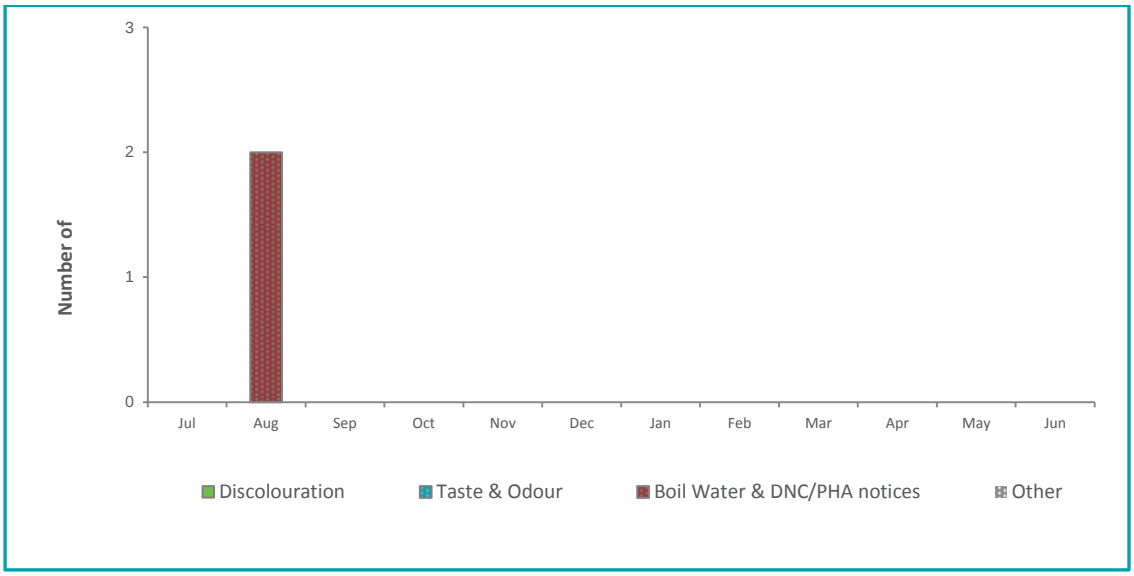
- * DBPs were detected above the ADWG health limits in December 2016 and June 2017. Due to a lack of filtration barriers, precursors to DBPs such as organic matter are not removed. Chlorine residuals are maintained to provide disinfection.

6.23.5. Analysis of overall system performance (2016-17)

Table 6.23.5-a General physical performance 2016-17

General physical parameters (2016-17)					
Parameter	Unit	Guideline Value	Mean	Min	Max
Chlorine residual	mg/L	0.1 - <0.8	0.61	0.01	1.93
Colour True	HU	15	12.7	3	18
pH	Units	6.5 – 8.5	6.69	6.28	7.07
Turbidity	NTU	1	4.51	0.93	14.6

Figure 6.23.5-a Customer complaints by month and type.



6.24. Fingal drinking water system

6.24.1. Summary of system status

Fingal drinking water system	
System status (as at 30 June 2017)	Potable
Total number of connections	339
Fluoride	n/a

Performance overview against health targets (2016-17)

Indicator	Outcome	Compliant	Target	Sampling Events	Non-conformances
Microbiological	100.0%	☑	98.0%	52	0
Fluoride	n/a	n/a	n/a	n/a	n/a
Metals	100.0%	☑	100.0%	4	0
DBPs	100.0%	☑	100.0%	4	0

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

Overall system performance (2016-17)

Indicator	Occurrences	Details
Customer complaints	3	Discoloured water, taste & odour.
Public health warnings issued	0	
System incidents & issues	0	
Catchment and water source issues	1	Trace levels of pesticides were collected in the catchment. All results were well below the ADWG health limits.

Current and future planned infrastructure and operational changes

Project	Description	Progress	Est. Delivery	Est. Spend
n/a	n/a	n/a	n/a	n/a

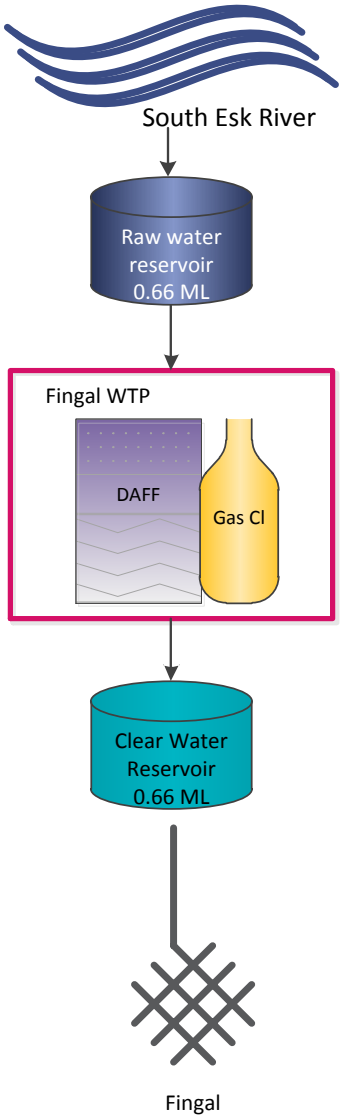


Figure 6.24.1-a Fingal system schematic

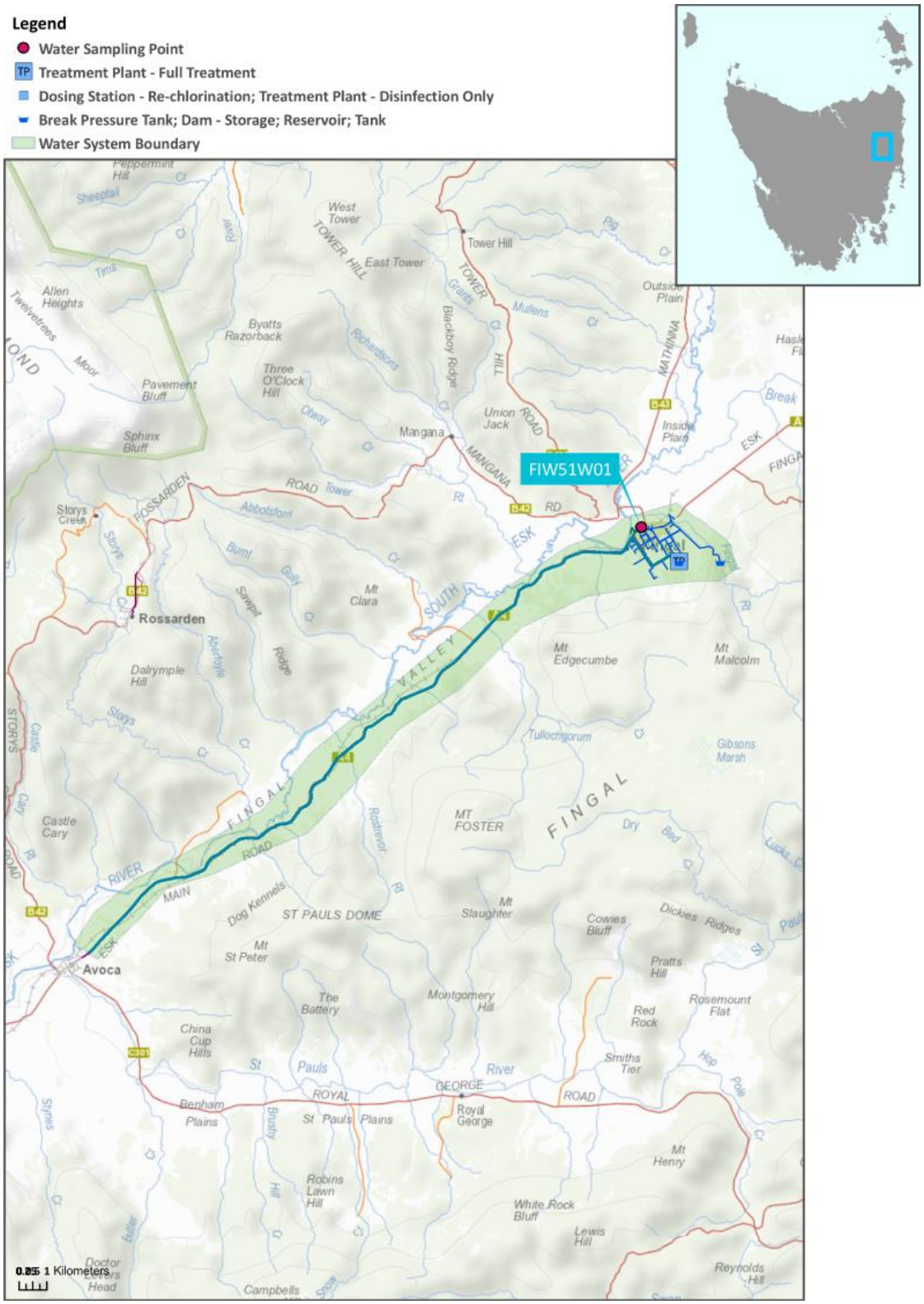


Figure 6.24.1-b Map of Fingal monitoring system

6.24.2. Summary of Annual Reticulation Compliance (2016–17)

Table 6.24.2-a Compliance sampling program

Planned compliance sampling program (2016-17)								
Site name	Site Code	Micros	Metals	DBP	Fluoride (Field)	Fluoride (Lab)	Chemical Profile	Process Chemicals
Fingal/Miners Park	FIW51W01	W	Q	Q	n/a	n/a	Q	n/a
Number Planned Samples		**52**	**4**	**4**	**0**	**0**	**4**	**0**
Number Samples Tested		**52**	**4**	**4**	**0**	**0**	**4**	**0**

6.24.3. Summary of current and historic performance (2012-17)

Table 6.24.3-a Historical health performance overview (5 year comparison)

Historical health performance overview (5 year comparison)					
Indicator	2012-13	2013-14	2014-15	2015-16	2016-17
Microbiological	30.0%	29.0%	97.0%	100.0%	100.0%
Fluoride	n/a	n/a	n/a	n/a	n/a
Metals	100.0%	100.0%	98.0%	100.0%	100.0%
Disinfection by products	n/a	n/a	100.0%	100.0%	100.0%

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

6.24.4. Analysis of current health performance (2016-17)

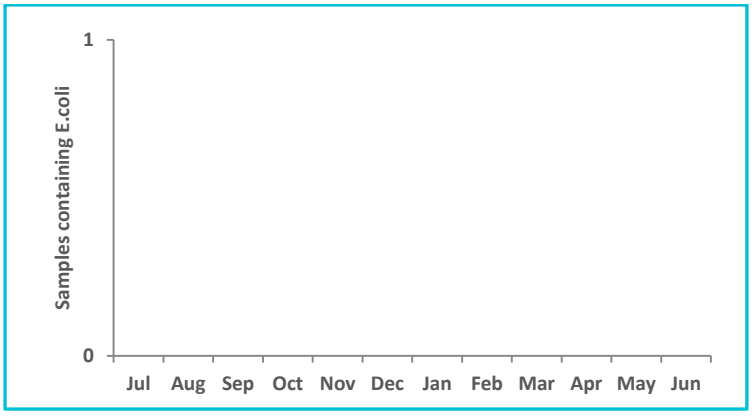


Figure 6.24.4-a Microbiological non-compliances by month (2016-17)

Table 6.24.4-a Metals performance 2016-17

Metals – health regulated parameters (2016–17)								
Parameter	Limit	Unit	Samples	Exceedances	Performance %	Mean	Min.	Max.
Antimony	0.003	mg/L	4	0	100	<0.0005	<0.0005	<0.0005
Arsenic	0.01	mg/L	4	0	100	0.0005	<0.0003	<0.001
Barium	2	mg/L	4	0	100	0.0071	0.0059	0.0082
Cadmium	0.002	mg/L	4	0	100	<0.0001	<0.0001	<0.0001
Chromium	0.05	mg/L	4	0	100	0.0003	<0.0001	<0.001
Copper	2	mg/L	4	0	100	0.0116	0.008	0.016
Lead	0.01	mg/L	4	0	100	0.0003	<0.0001	<0.0005
Manganese	0.5	mg/L	4	0	100	0.0021	0.0003	0.004
Mercury	0.001	mg/L	4	0	100	0.00005	<0.00003	0.00008
Molybdenum	0.05	mg/L	4	0	100	0.0002	<0.0001	<0.0005
Nickel	0.02	mg/L	4	0	100	0.0002	<0.0001	<0.0005
Selenium	0.01	mg/L	4	0	100	0.0006	<0.0001	<0.002

Table 6.24.4-b Disinfection by product performance 2016-17

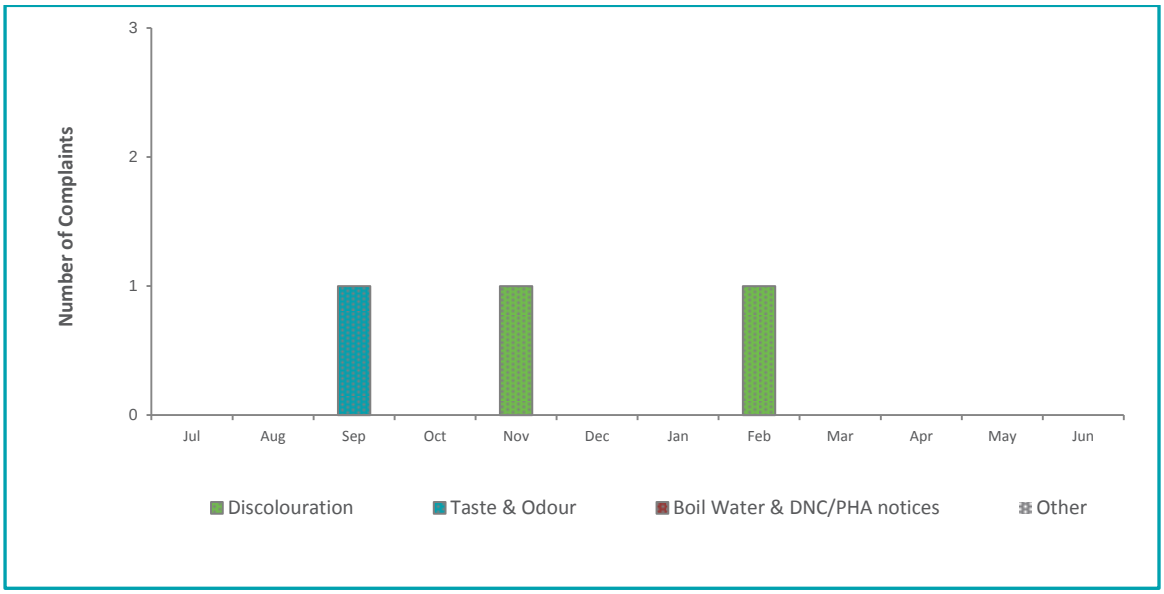
Disinfection by products – health regulated parameters (2016–17)								
Parameter	Limit	Unit	Samples	Exceedances	Performance %	Mean	Min.	Max.
Dichloroacetic acid	100	µg/L	4	0	100	11.25	8	15
Monochloroacetic acid	150	µg/L	4	0	100	<5	<3	<5
Trichloroacetic acid	100	µg/L	4	0	100	10.75	6	17
Total trihalomethanes	250	µg/L	4	0	100	36.75	20	49

6.24.5. Analysis of overall system performance (2016-17)

Table 6.24.5-a General physical performance 2016-17

General physical parameters (2016-17)					
Parameter	Unit	Guideline Value	Mean	Min	Max
Chlorine residual	mg/L	0.1 - <0.8	0.72	0.27	1.16
Colour True	HU	15	<1	<1	1
pH	Units	6.5 – 8.5	7.47	6.66	7.95
Turbidity	NTU	1	0.45	0.12	3.83

Figure 6.24.5-a Customer complaints by month and type.



6.25. Forth drinking water system

6.25.1. Summary of system status

Forth drinking water system	
System status (as at 30 June 2017)	Potable
Total number of connections	18,159
Fluoride	Fluorosilicic acid

Performance overview against health targets (2016-17)

Indicator	Outcome	Compliant	Target	Sampling Events	Non-conformances
Microbiological	100.0%	☑	98.0%	728	0
Fluoride	100.0%	☑	90.0%	104	0
Metals	100.0%	☑	100.0%	28	0
DBPs	100.0%	☑	100.0%	12	0

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

Overall system performance (2016-17)

Indicator	Occurrences	Details
Customer complaints	81	Discoloured water, taste & odour, other (illness from water).
Public health warnings issued	0	
System incidents & issues	1	Fluoridation plant issues
Catchment and water source issues	0	

Current and future planned infrastructure and operational changes

Project	Description	Progress	Est. Delivery	Est. Spend ($'000)
Forth River Major Upgrade / Replacement	New WTP to Forth which will deliver treated water to the communities of Devonport, Port Sorell, Latrobe, Gawler and Forth.	Strategy	FY20/21	$101,002.88

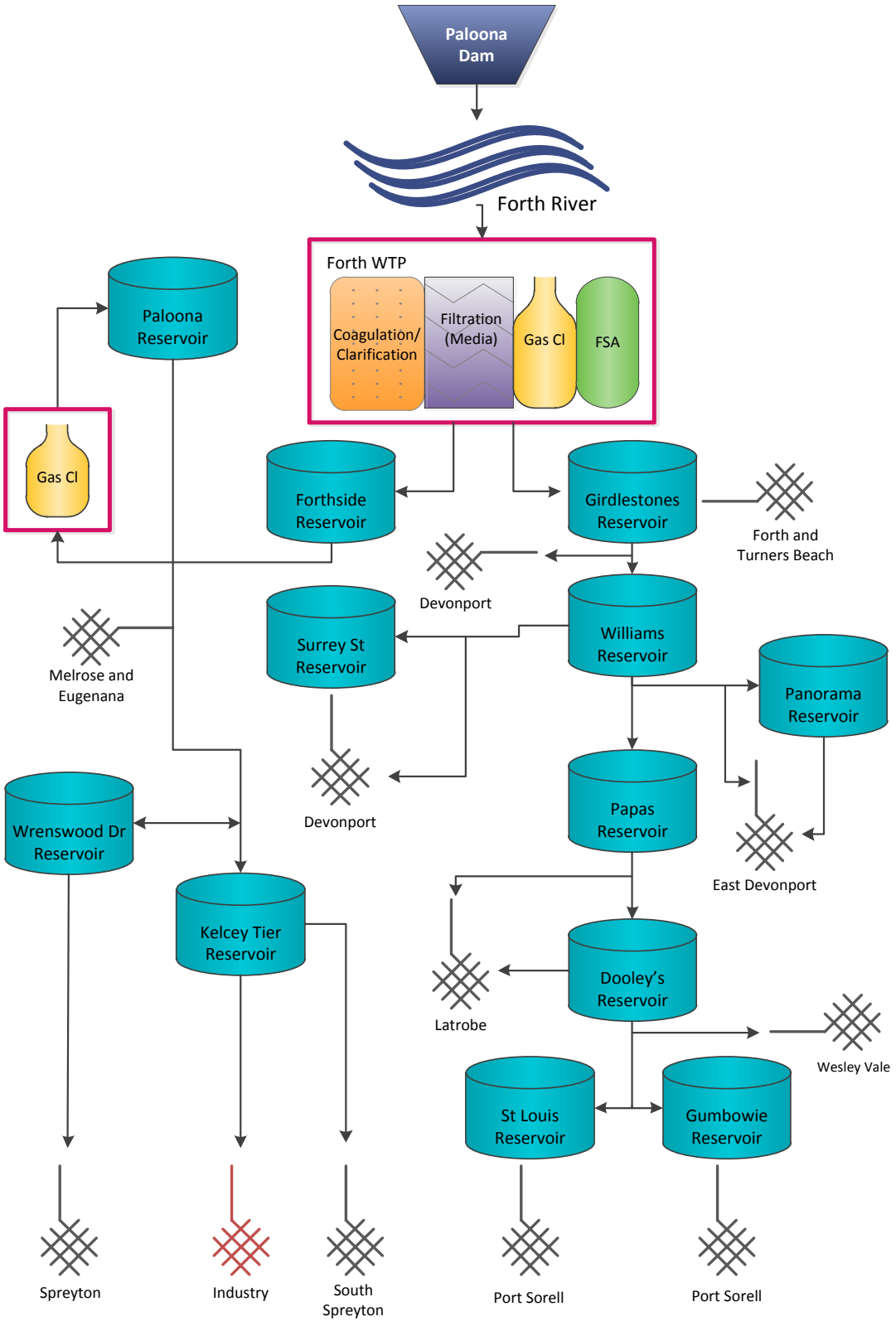


Figure 6.25.1-a Forth system schematic

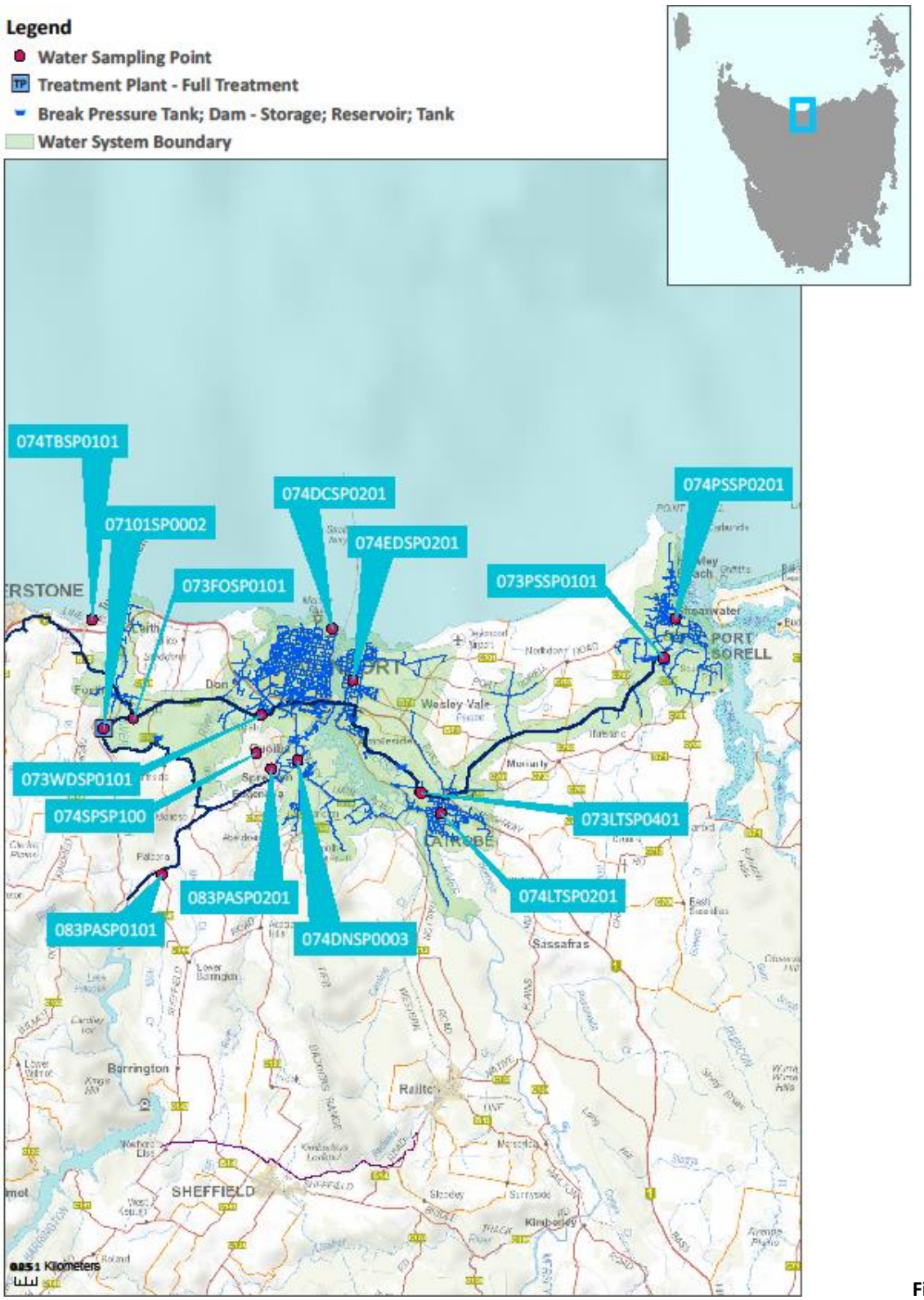


Figure 6.25.1-b Map of Forth monitoring system

6.25.2. Summary of Annual Reticulation Compliance (2016–17)

Table 6.25.2-a Compliance sampling program

Planned compliance sampling program (2016-17)								
Site name	Site Code	Micros	Metals	DBP	Fluoride (Field)	Fluoride (Lab)	Chemical Profile	Process Chemicals
Forth/Spreyton Memorial Hall	074DNSP0003	W	n/a	n/a	n/a	n/a	n/a	n/a
Forth/Clear Water Outlet Sample Point	07101SP0002	W	n/a	n/a	n/a	n/a	Q	M
Forth/Girdlestones Res Sample Point	073FOSP0101	W	n/a	n/a	n/a	n/a	Q	n/a
Forth/Dooleys Res Sample Point	073LTSP0401	W	n/a	n/a	n/a	n/a	n/a	n/a
Forth/Port Sorell Res, Sample Point	073PSSP0101	W	n/a	n/a	n/a	n/a	n/a	n/a
Forth/Williams Res Sample Point	073WDSP0101	W	n/a	n/a	n/a	n/a	n/a	n/a
Forth/Mersey Bluff Surf Club Sample Point	074DCSP0201	W	Q	Q	n/a	n/a	Q	n/a
Forth/Wright St Sample Point	074EDSP0201	W	Q	n/a	n/a	n/a	n/a	n/a
Forth/Latrobe Town Hall Sample Point	074LTSP0201	W	n/a	n/a	W	M	n/a	n/a
Forth/Port Sorell Surf Club Sample Point	074PSSP0201	W	Q	Q	W	n/a	Q	n/a
Gawler/Turners Beach Esplanade	074TBSP0101	W	n/a	n/a	n/a	n/a	n/a	n/a
Forth/Wrenswood Drv Res Sample Point	074SPSP100	W	Q	Q	n/a	n/a	Q	n/a
Forth/Paloona Res, Sample Point	083PASP0101	W	n/a	n/a	n/a	n/a	n/a	n/a
Forth/Big Kelcey Reservoir	083PASP0201	W	n/a	n/a	n/a	n/a	n/a	n/a
Number Planned Samples		**728**	**16**	**12**	**104**	**12**	**20**	**12**
Number Samples Tested		**728**	**16**	**12**	**104**	**12**	**20**	**12**

6.25.3. Summary of current and historic performance (2012-17)

Table 6.25.3-a Historical health performance overview (5 year comparison)

Historical health performance overview (5 year comparison)					
Indicator	**2012-13**	**2013-14**	**2014-15**	**2015-16**	**2016-17**
Microbiological	100.0%	99.8%	100.0%	100.0%	100.0%
Fluoride	n/a	n/a	100.0%	100.0%	100.0%
Metals	n/a	100.0%	99.4%	100.0%	100.0%
Disinfection by products	n/a	100.0%	100.0%	100.0%	100.0%

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

Table 6.25.3-b Distribution fluoride testing overview (5 year comparison)

Distribution fluoride testing overview (5 year comparison)					
Indicator	**2012-13**	**2013-14**	**2014-15**	**2015-16**	**2016-17**
Exceeding 1.5 mg/L	n/a	n/a	0	0	0
Within target range (%)	n/a	n/a	93.0%	93.1%	87.5
Mean dose (mg/L)	n/a	n/a	0.94	0.93	0.92

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

- Fluoride plant off intermittently for maintenance throughout reporting period.

6.25.4. Analysis of current health performance (2016-17)

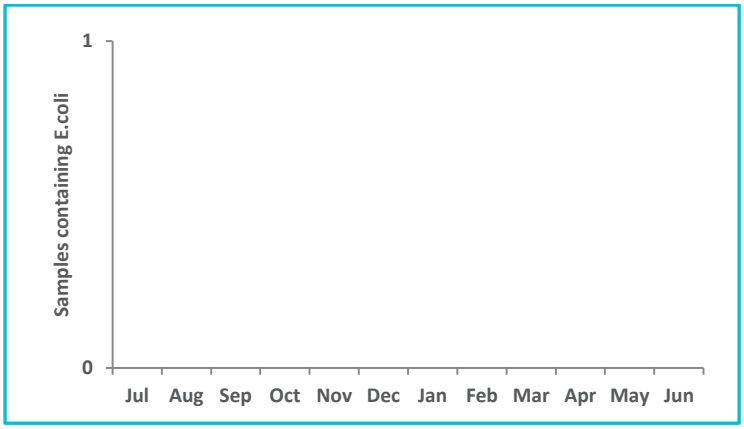


Figure 6.25.4-a Microbiological non-compliances by month (2016-17)

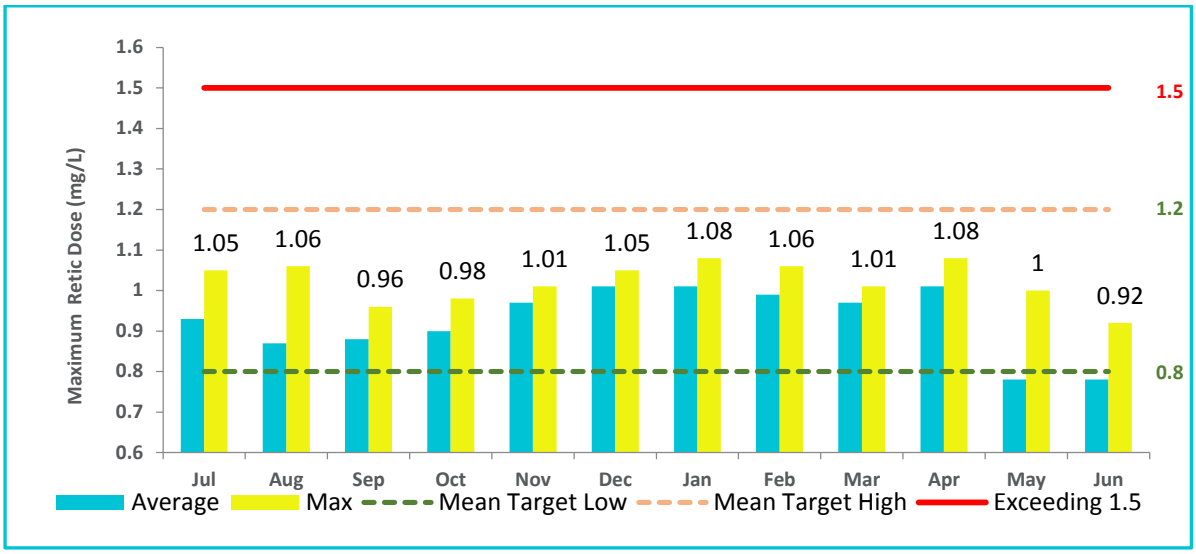


Figure 6.25.4-b Average reticulation fluoride dose by month (2016-17)

Table 6.25.4-a Metals performance 2016-17

Metals – health regulated parameters (2016–17)								
Parameter	**Limit**	**Unit**	**Samples**	**Exceedances**	**Performance %**	**Mean**	**Min.**	**Max.**
Antimony	0.003	mg/L	16	0	100	0.0005	<0.0005	0.0009
Arsenic	0.01	mg/L	28	0	100	0.0006	<0.0003	<0.001
Barium	2	mg/L	28	0	100	0.0082	0.005	0.012
Cadmium	0.002	mg/L	28	0	100	<0.0001	<0.0001	<0.0001
Chromium	0.05	mg/L	28	0	100	0.0005	<0.0001	<0.001
Copper	2	mg/L	16	0	100	0.02	<0.0001	0.051
Lead	0.01	mg/L	28	0	100	0.0004	<0.0001	0.0012
Manganese	0.5	mg/L	28	0	100	0.0029	0.0004	0.009
Mercury	0.001	mg/L	27#	0	100	0.00007	0.00003	0.00029
Molybdenum	0.05	mg/L	16	0	100	0.0003	<0.0001	<0.0005
Nickel	0.02	mg/L	28	0	100	0.0004	<0.0001	0.0027
Selenium	0.01	mg/L	28	0	100	0.001	<0.0001	<0.002

- # No Mercury result on 6/6/17 due to sampling error for site – 07101SP0002: Forth Clear Water Outlet SP.

Table 6.25.4-b Disinfection by product performance 2016-17

Disinfection by products – health regulated parameters (2016–17)								
Parameter	**Limit**	**Unit**	**Samples**	**Exceedances**	**Performance %**	**Mean**	**Min.**	**Max.**
Dichloroacetic acid	100	µg/L	12	0	100	5.46	<1	15
Monochloroacetic acid	150	µg/L	12	0	100	<5	<3	<5
Trichloroacetic acid	100	µg/L	12	0	100	11.17	4	19
Total trihalomethanes	0.002	µg/L	12	0	100	55.08	37	82

6.25.5. Analysis of overall system performance (2016-17)

Table 6.25.5-a General physical performance 2016-17

General physical parameters (2016-17)					
Parameter	**Unit**	**Guideline Value**	**Mean**	**Min**	**Max**
Chlorine residual	mg/L	0.1 - <0.8	0.45	0.00	1.57
Colour True	HU	15	<1	<1	1
pH	Units	6.5 – 8.5	7.47	6.59	9.44
Turbidity	NTU	1	0.32	0.1	16.0

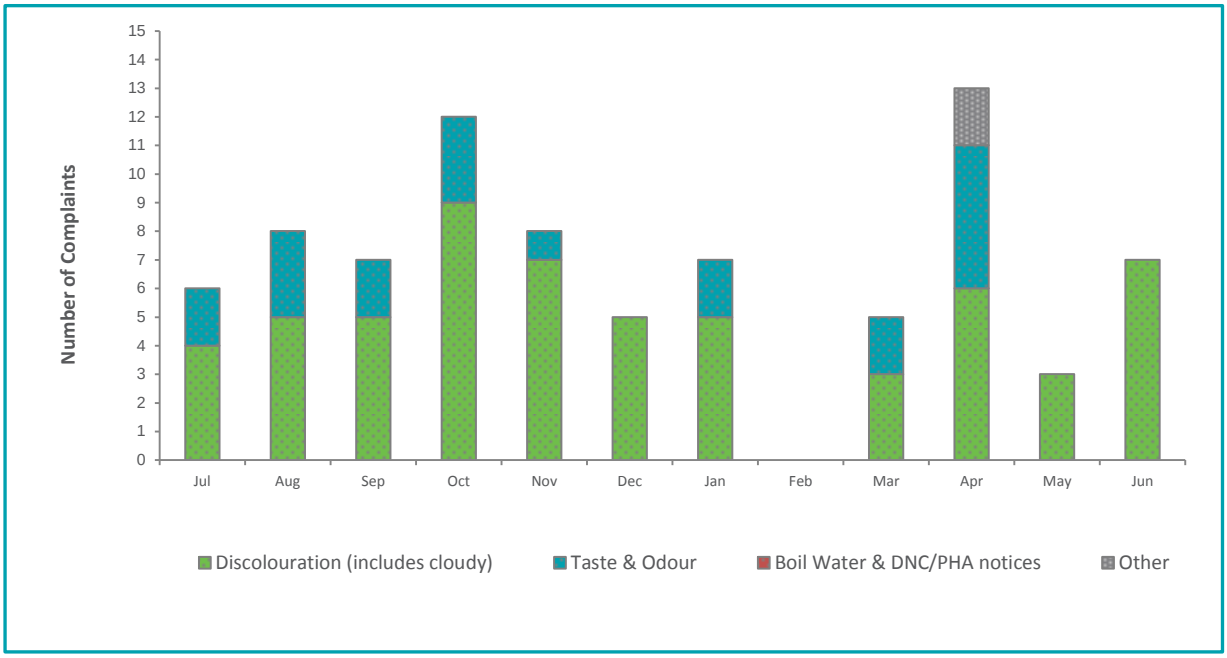


Figure 6.25.5-a Customer complaints by month and type

6.26. Gawler drinking water system

6.26.1. Summary of system status

Gawler drinking water system	
System status (as at 30 June 2017)	Potable
Total number of connections	6062
Fluoride	Fluorosilicic acid

Performance overview against health targets (2016-17)

Indicator	Outcome	Compliant	Target	Sampling Events	Non-conformances
Microbiological	100.0%	☑	98.0%	468	0
Fluoride	100.0%	☑	100.0%	102	0
Metals	100.0%	☑	100.0%	18	0
DBPs	100.0%	☑	100.0%	2	0

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

Overall system performance (2016-17)

Indicator	Occurrences	Details
Customer complaints	74	Discoloured water, taste & odour, other (illness from water).
Public health warnings issued	0	
System incidents & issues	1	Fluoride off for maintenance intermittently
Catchment and water source issues	2	Trace levels of pesticides were collected in the catchment. All results were well below the ADWG health limits.

Current and future planned infrastructure and operational changes

Project	Description	Progress	Est. Delivery	Est. Spend ($'000)
Forth River Major Upgrade / Replacement	New WTP to Forth which will deliver treated water to the communities of Devonport, Port Sorell, Latrobe, Gawler and Forth.	Strategy	FY20/21	$101,002.88

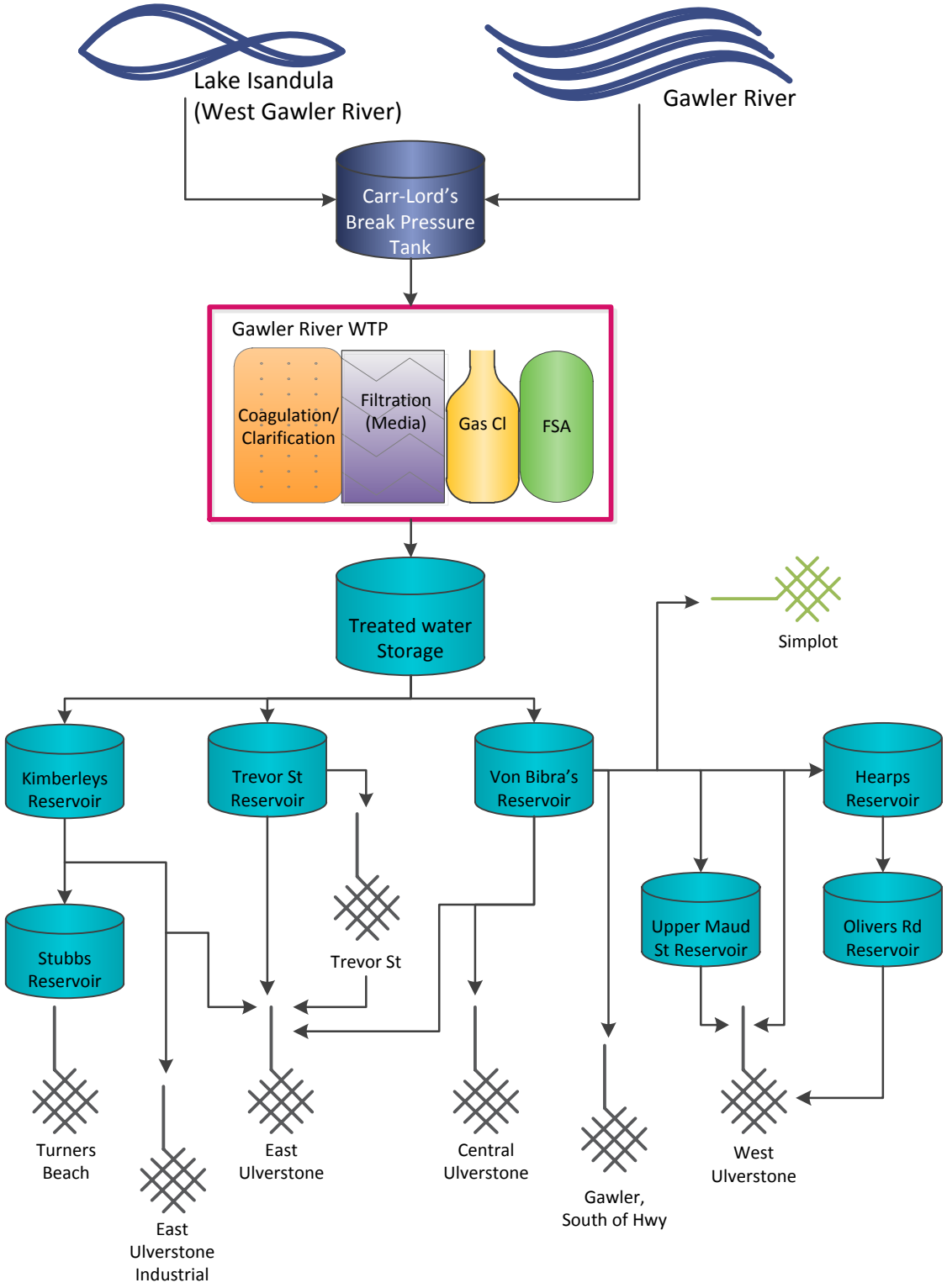


Figure 6.26.1-a Gawler system schematic

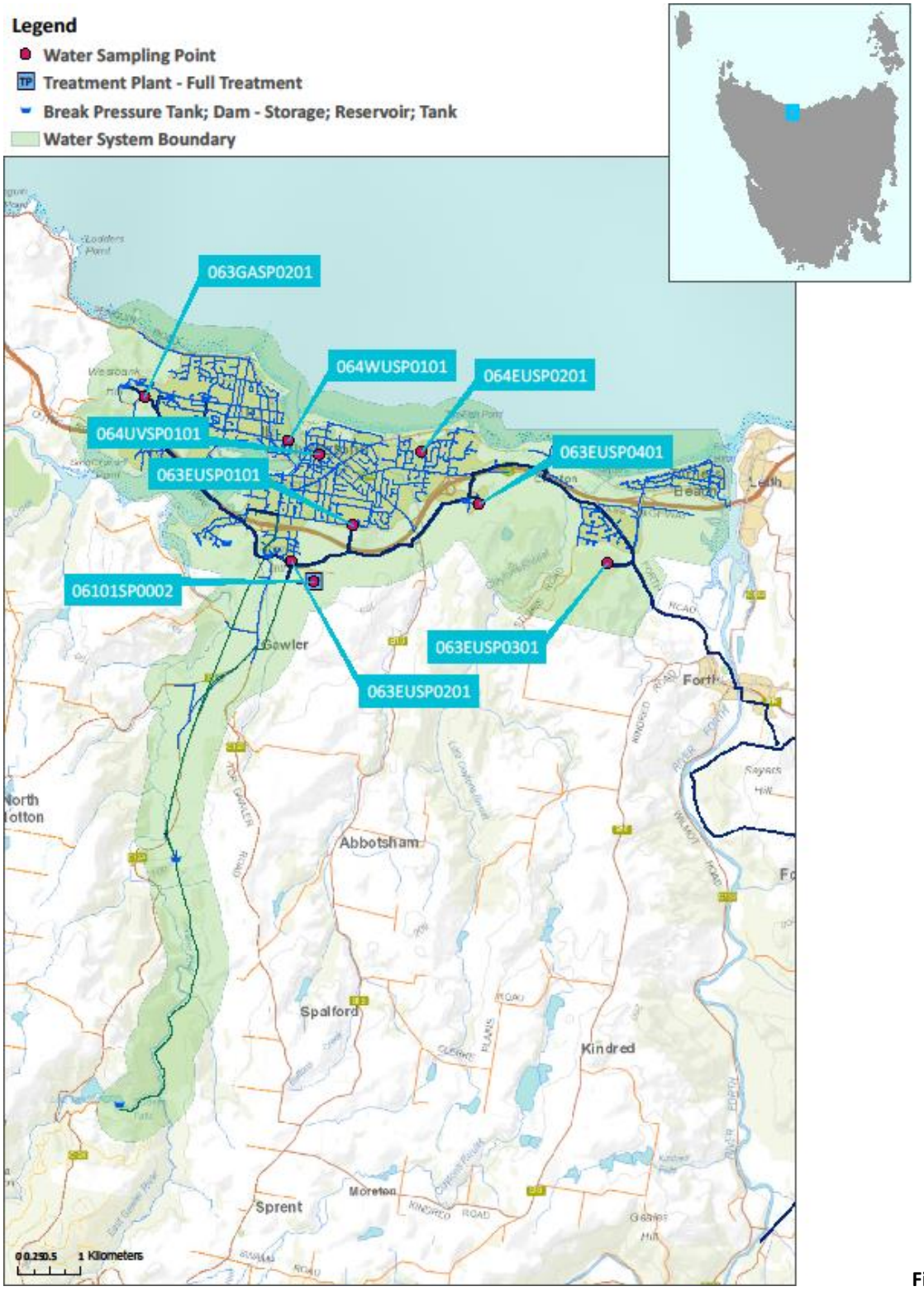


Figure 6.26.1-b Map of Gawler monitoring system

6.26.2. Summary of Annual Reticulation Compliance (2016–17)

Table 6.26.2-a Compliance sampling program

Planned compliance sampling program (2016-17)								
Site name	**Site Code**	**Micros**	**Metals**	**DBP**	**Fluoride (Field)**	**Fluoride (Lab)**	**Chemical Profile**	**Process Chemicals**
Gawler/WTP Treated Storage Outlet	06101SP0002	W	n/a	n/a	n/a	n/a	Q	M
Gawler/Heazlewood Res Sample Tap	063EUSP0101	W	n/a	n/a	n/a	n/a	n/a	n/a
Gawler/Von Bibra Res Sample Point	063EUSP0201	W	n/a	n/a	n/a	n/a	n/a	n/a
Gawler/Stubbs Res Sample Tap	063EUSP0301	W	n/a	n/a	n/a	n/a	n/a	n/a
Gawler/Kimberley Res Sample Tap	063EUSP0401	W	n/a	n/a	n/a	n/a	n/a	n/a
Gawler/Hearps Res Sample Point	063GASP0201	W	n/a	n/a	n/a	n/a	n/a	n/a
Gawler/Ulverstone Swimming Pool	064EUSP0201	W	Q	Q	W	M	Q	n/a
Gawler/Ulverstone Council Chambers Sample Tap	064UVSP0101	W	n/a	n/a	n/a	n/a	n/a	n/a
Gawler/Flora St Wst Ulverstone Sample Point	064WUSP0101	W	Q	n/a	W	n/a	Q	n/a
Number Planned Samples		**468**	**8**	**4**	**104**	**12**	**12**	**12**
Number Samples Tested		**468**	**8**	**2#**	**102^**	**12**	**12**	**10***

- # DBP added to sampling program from January 2017.
- ^ Two fluoride readings missed on 7/9/116 due to sampling error.
- *Missing monthly process chemicals for site 06101SP0002: Gawler/WTP Treated Storage Outlet in September 2016 and February 2017 due to sampling error.

6.26.3. Summary of current and historic performance (2012-17)

Table 6.26.3-a Historical health performance overview (5 year comparison)

Historical health performance overview (5 year comparison)					
Indicator	**2012-13**	**2013-14**	**2014-15**	**2015-16**	**2016-17**
Microbiological	100.0%	100.0%	99.75	99.8%	100.0%
Fluoride	n/a	n/a	100.0%	100.0%	100.0%
Metals	n/a	100.0%	100.0%	100.0%	100.0%
Disinfection by products	n/a	100.0%	100.0%	100.0%	100.0%

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

Table 6.26.3-b Distribution fluoride testing overview (5 year comparison)

Distribution fluoride testing overview (5 year comparison)					
Indicator	**2012-13**	**2013-14**	**2014-15**	**2015-16**	**2016-17**
Exceeding 1.5 mg/L	n/a	n/a	0	0	0
Within target range (%)	n/a	n/a	51.0%	93.7%	37.3%
Mean dose (mg/L)	n/a	n/a	0.80	0.96	0.64

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

- Fluoride dosing station off for maintenance intermittently throughout reporting period resulting in low fluoride in reticulation network.

6.26.4. Analysis of current health performance (2016-17)

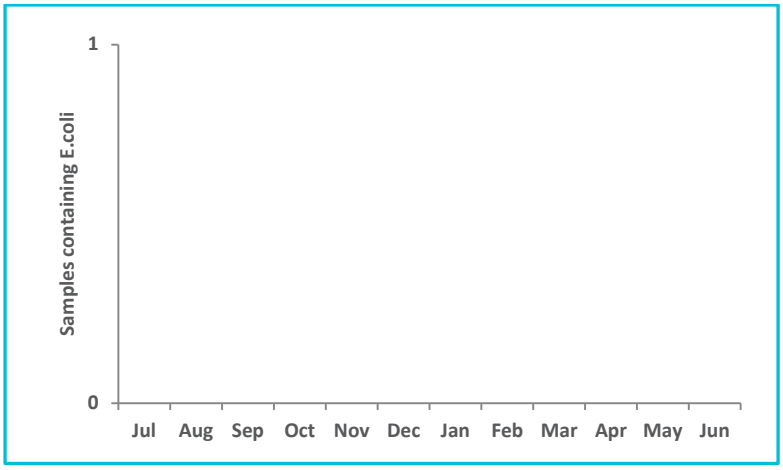


Figure 6.26.4-a Microbiological non-compliances by month (2016-17)

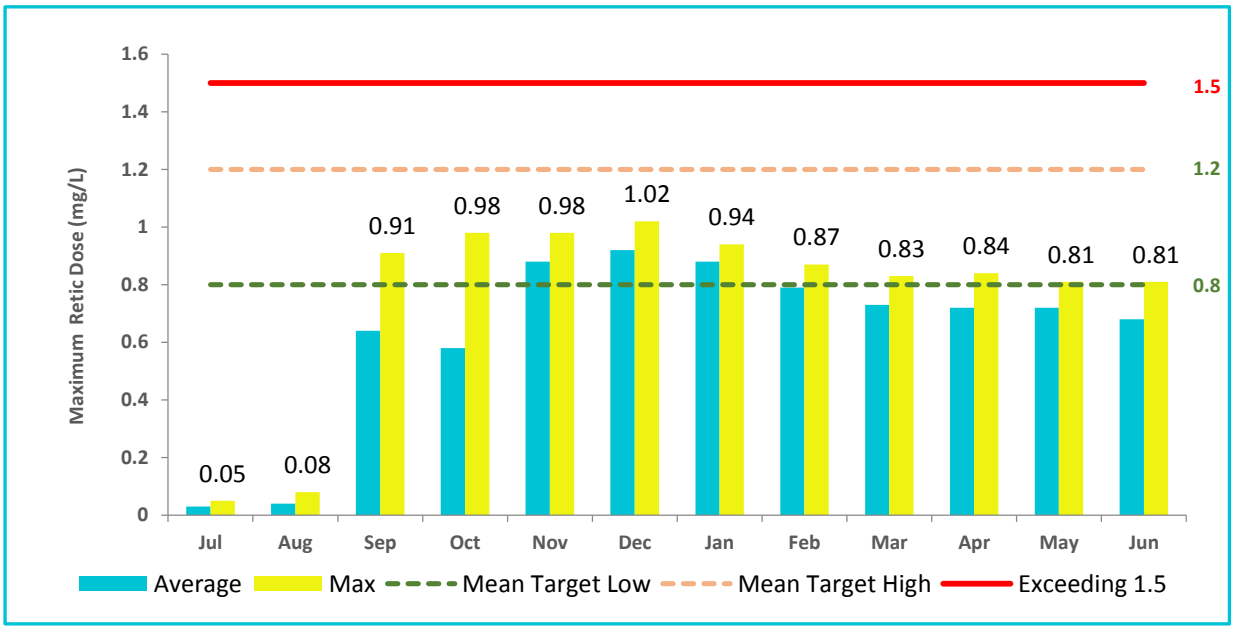


Figure 6.26.4-b Average reticulation fluoride dose by month (2016-17)

Table 6.26.4-a Metals performance 2016-17

Metals – health regulated parameters (2016–17)								
Parameter	Limit	Unit	Samples	Exceedances	Performance %	Mean	Min.	Max.
Antimony	0.003	mg/L	8	0	100	<0.0005	<0.0005	<0.0005
Arsenic	0.01	mg/L	18	0	100	0.0006	<0.0003	<0.001
Barium	2	mg/L	18	0	100	0.0158	0.011	0.0207
Cadmium	0.002	mg/L	18	0	100	<0.0001	<0.0001	<0.0001
Chromium	0.05	mg/L	18	0	100	0.0005	<0.0001	<0.001
Copper	2	mg/L	8	0	100	0.0058	0.0013	0.0129
Lead	0.01	mg/L	18	0	100	0.0003	<0.0001	<0.0005
Manganese	0.5	mg/L	18	0	100	0.0186	0.004	0.0556
Mercury	0.001	mg/L	18	0	100	0.00006	<0.00003	0.00014
Molybdenum	0.05	mg/L	8	0	100	0.0003	<0.0001	<0.0005
Nickel	0.02	mg/L	18	0	100	0.0015	<0.0001	0.0043
Selenium	0.01	mg/L	18	0	100	0.0009	<0.0001	<0.002

- *Missing monthly process chemicals for site 06101SP0002:Gawler/WTP Treated Storage Outlet in September 2016 and February 2017 due to sampling error

Table 6.26.4-b Disinfection by product performance 2016-17

Disinfection by products – health regulated parameters (2016–17)								
Parameter	Limit	Unit	Samples	Exceedances	Performance %	Mean	Min.	Max.
Dichloroacetic acid	100	µg/L	2	0	100	1.25	<1	2
Monochloroacetic acid	150	µg/L	2	0	100	<3	<3	<3
Trichloroacetic acid	100	µg/L	2	0	100	8.5	7	10
Total trihalomethanes	250	µg/L	2	0	100	79.5	74	85

DBP added to sampling program from January 2017.

6.26.5. Analysis of overall system performance (2016-17)

Table 6.26.5-a General physical performance 2016-17

General physical parameters (2016-17)					
Parameter	**Unit**	**Guideline Value**	**Mean**	**Min**	**Max**
Chlorine residual	mg/L	0.1 - <0.8	0.41	0.03	1.78
Colour True	HU	15	<1	<1	<1
pH	Units	6.5 – 8.5	7.36	6.75	8.89
Turbidity	NTU	1	0.53	0.14	0.78

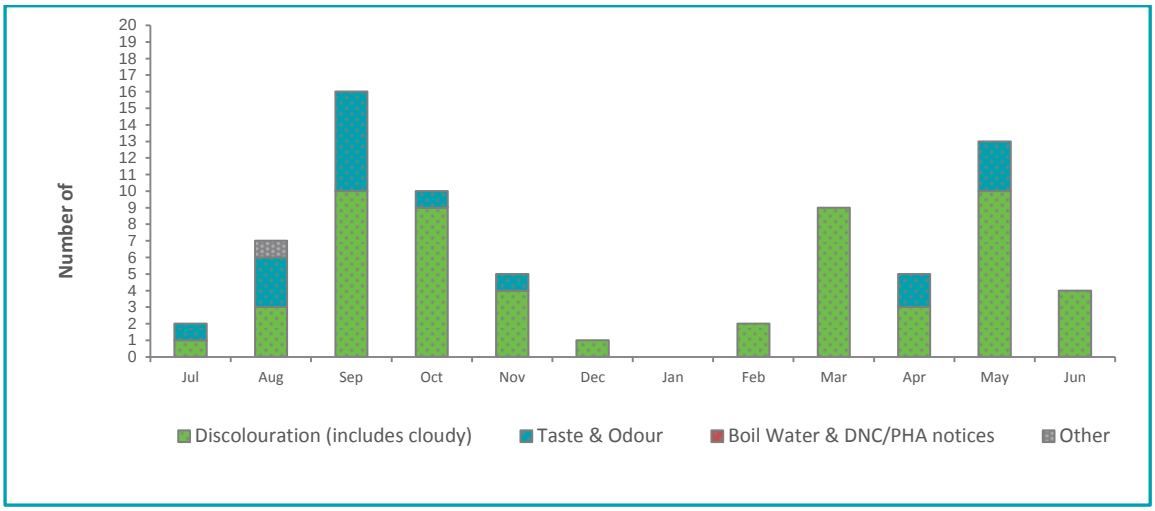


Figure 6.26.5-a Customer complaints by month and type

6.27. Gladstone drinking water system

6.27.1. System summary (2016-17)

Gladstone drinking water system	
System status (as at 30 June 2017)	BWA
Total number of connections	90
Fluoride	n/a

Performance overview against health targets (2016-17)

Indicator	Outcome	Compliant	Target	Sampling Events	Non-conformances
Microbiological	16.7%	☒	98.0%	12	10
Fluoride	n/a	n/a	n/a	n/a	n/a
Metals	100.0%	☑	100.0%	4	0
DBPs	n/a	n/a	n/a	n/a	n/a

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

Overall system performance (2016-17)

Indicator	Occurrences	Details
Customer complaints	0	
Public health warnings issued	0	BWA issued prior to FY2016-17
System incidents & issues	10	E. coli exceedances.
Catchment and water source issues	4	Trace levels of pesticides were collected in the catchment. All results were well below the ADWG health limits.

Current and future planned infrastructure and operational changes

Project	Description	Progress	Est. Delivery	Est. Spend
Gladstone Water Supply System	Treated Water supply to the community	Tender	FY17/18	$3,121.27

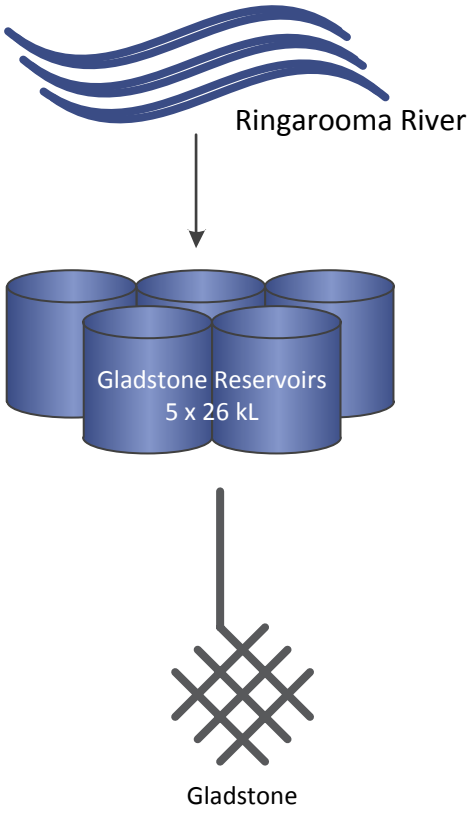


Figure 6.27.1-a Gladstone system schematic

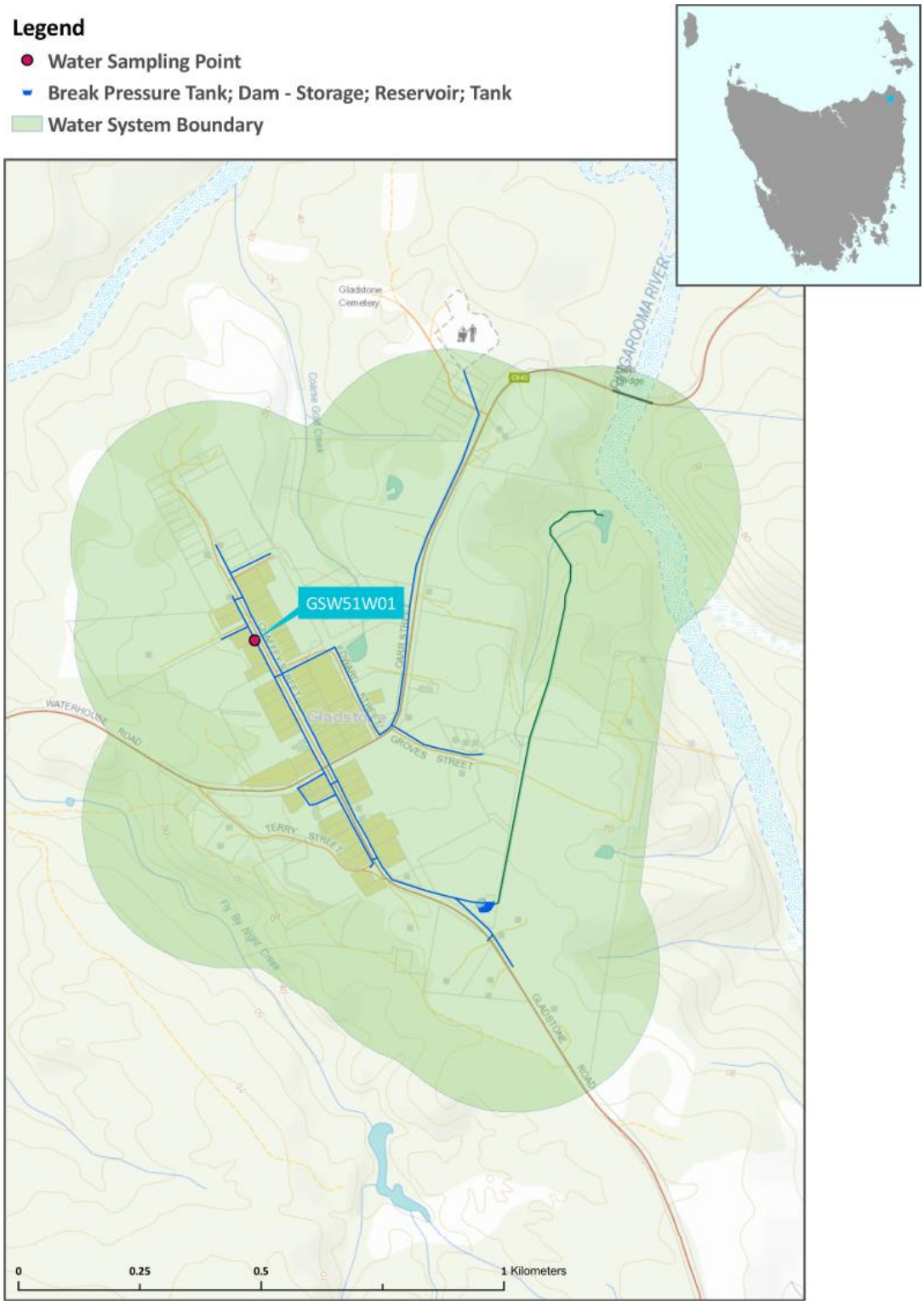


Figure 6.27.1-b Map of Gladstone monitoring system

6.27.2. Summary of Annual Reticulation Compliance (2016–17)

Table 6.28.2-a Compliance sampling program

Planned compliance sampling program (2016-17)								
Site name	Site Code	Micros	Metals	DBP	Fluoride (Field)	Fluoride (Lab)	Chemical Profile	Process Chemicals
Gladstone/Fire Station	GSW51W01	M	Q	n/a	n/a	n/a	Q	n/a
Number Planned Samples		**12**	**4**	**0**	**0**	**0**	**4**	**0**
Number Samples Tested		**12**	**4**	**0**	**0**	**0**	**4**	**0**

6.27.3. Summary of current and historic performance (2012-17)

Table 6.27.3-a Historical health performance overview (5 year comparison)

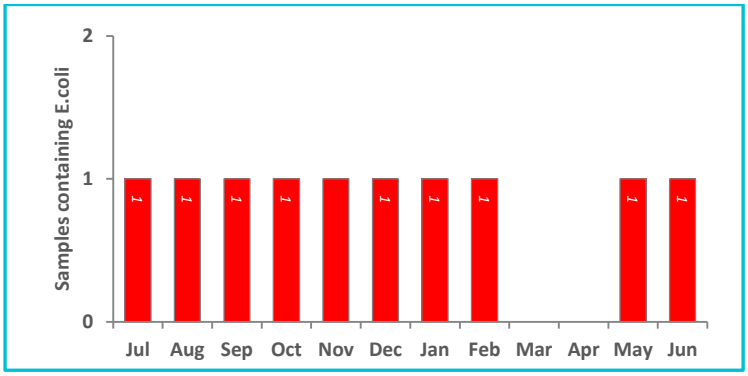
Historical health performance overview (5 year comparison)					
Indicator	2012-13	2013-14	2014-15	2015-16	2016-17
Microbiological	100.0%	99.5%	36.9%	33.3%	16.7%
Fluoride	n/a	n/a	n/a	n/a	n/a
Metals	100.0%	100.0%	100.0%	100.0%	100.0%
Disinfection by products	n/a	n/a	n/a	n/a	n/a

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

6.27.4. Analysis of current health performance (2016-17)

Figure 6.28.4-a Microbiological non-compliances by month (2016-17)



- Poor microbiological performance can be attributed to a lack of barriers and the susceptibility to changes in quality from the Ringarooma River.
- The risk to public health is mitigated through the communication of the Permanent BWA to customers.

Table 6.27.4-a Metals performance 2016-17

Metals – health regulated parameters (2016–17)								
Parameter	**Limit**	**Unit**	**Samples**	**Exceedances**	**Performance %**	**Mean**	**Min.**	**Max.**
Antimony	0.003	mg/L	4	0	100	<0.0005	<0.0005	<0.0005
Arsenic	0.01	mg/L	4	0	100	0.0006	<0.0003	<0.001
Barium	2	mg/L	4	0	100	0.011	0.0033	0.0317
Cadmium	0.002	mg/L	4	0	100	<0.0001	<0.0001	<0.0001
Chromium	0.05	mg/L	4	0	100	0.0006	<0.0001	<0.001
Copper	2	mg/L	4	0	100	0.0189	0.0143	0.021
Lead	0.01	mg/L	4	0	100	0.001	0.0008	0.0013
Manganese	0.5	mg/L	4	0	100	0.0162	0.002	0.0336
Mercury	0.001	mg/L	4	0	100	0.00004	<0.00003	<0.00005
Molybdenum	0.05	mg/L	4	0	100	0.0002	<0.0001	<0.0005
Nickel	0.02	mg/L	4	0	100	0.0004	0.0002	<0.0005
Selenium	0.01	mg/L	4	0	100	0.001	<0.0001	<0.002

6.27.5. Analysis of overall system performance (2016-17)

Table 6.27.5-a General physical performance 2016-17

General physical parameters (2016-17)					
Parameter	**Unit**	**Guideline Value**	**Mean**	**Min**	**Max**
Chlorine residual	mg/L	0.1 - <0.8	n/a	n/a	n/a
Colour True	HU	15	10.67	6	14
pH	Units	6.5 – 8.5	6.26	5.64	7.42
Turbidity	NTU	1	0.83	0.42	1.81

6.28. Gormanston drinking water system

6.28.1. Summary of system status

Gormanston drinking water system	
System status (as at 30 June 2017)	BWA
Total number of connections	56
Fluoride	n/a

Performance overview against health targets (2016-17)

Indicator	Outcome	Compliant	Target	Sampling Events	Non-conformances
Microbiological	50.0%	☒	98.0%	12	6
Fluoride	n/a	n/a	n/a	n/a	n/a
Metals	100.0%	☑	100.0%	4	0
DBPs	n/a	n/a	n/a	n/a	n/a

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

Overall system performance (2016-17)

Indicator	Occurrences	Details
Customer complaints	2	Discoloured water, taste & odour.
Public health warnings issued	0	
System incidents & issues	6	E. coli exceedances.
Catchment and water source issues	0	

Current and future planned infrastructure and operational changes

Project	Description	Progress	Est. Delivery	Est. Spend ($'000)
Gormanston Water Supply System	Treated water supply to the community of Gormanston.	Tender	FY17/18	$1,286.48

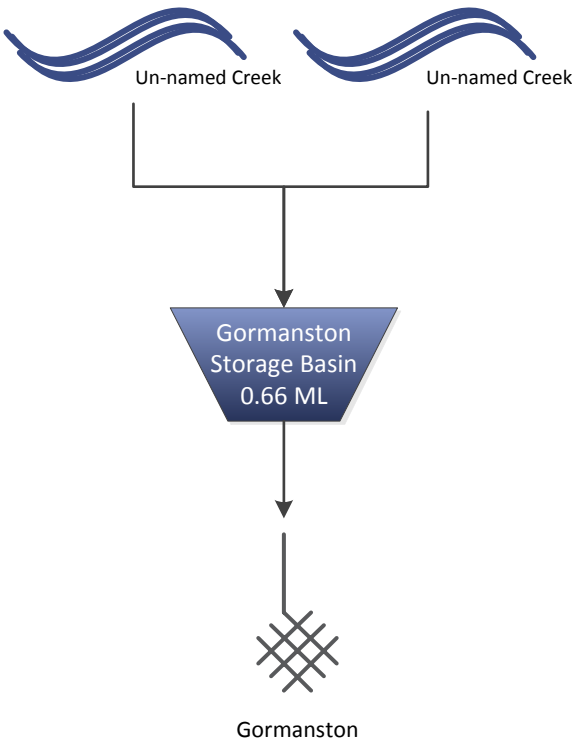


Figure 6.28.1-a Gormanston system schematic

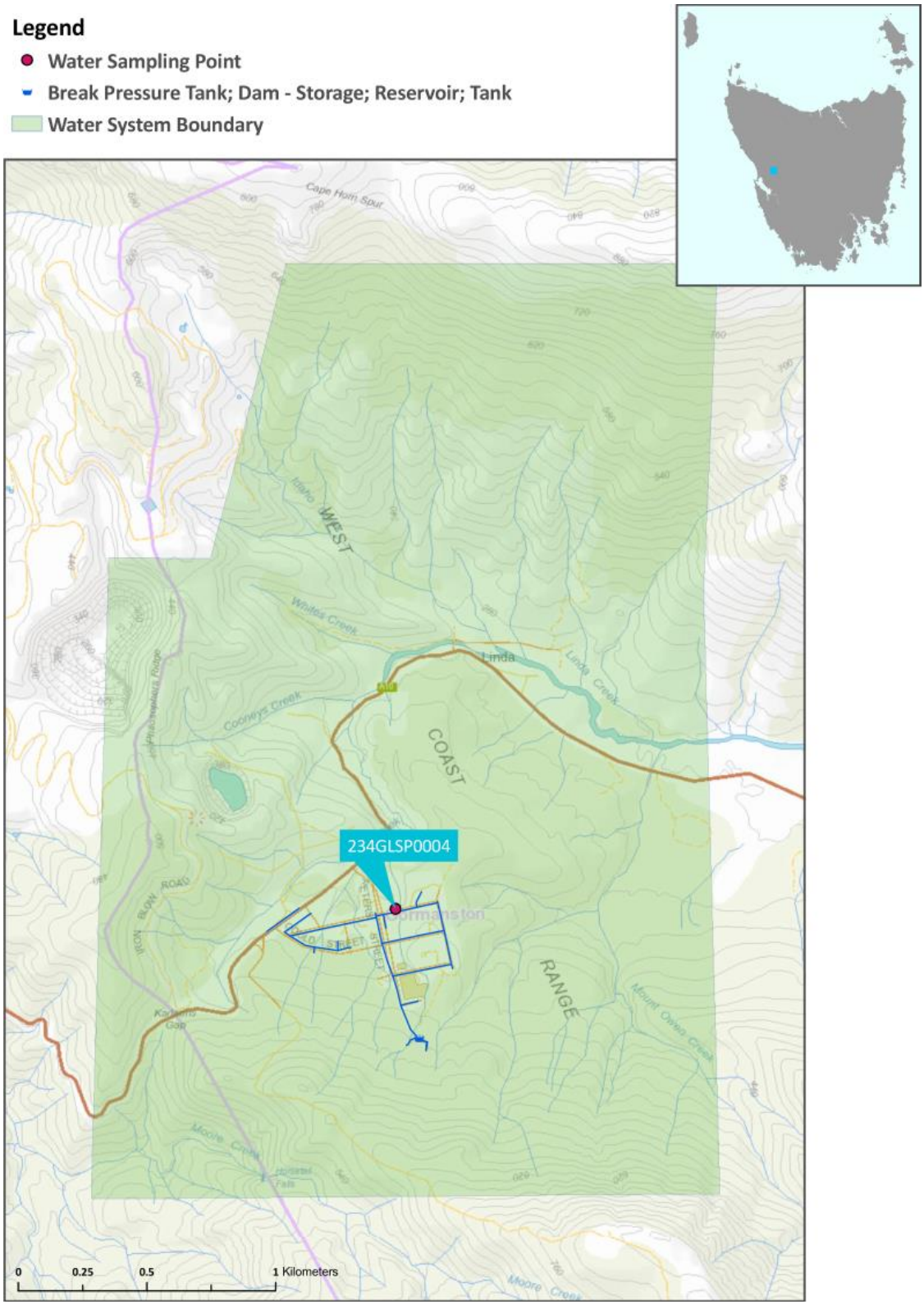


Figure 6.28.1-b Map of Gormanston monitoring system

6.28.2. Summary of Annual Reticulation Compliance (2016–17)

Table 6.28.2-a Compliance sampling program

Planned compliance sampling program (2016-17)								
Site name	Site Code	Micros	Metals	DBP	Fluoride (Field)	Fluoride (Lab)	Chemical Profile	Process Chemicals
Gormanston/Mongomery St.	234GLSP0004	M	Q	n/a	n/a	n/a	Q	n/a
Number Planned Samples		**12**	**4**	**0**	**0**	**0**	**4**	**0**
Number Samples Tested		**12**	**4**	**0**	**0**	**0**	**4**	**0**

6.28.3. Summary of current and historic performance (2012-17)

Table 6.28.3-a Historical health performance overview (5 year comparison)

Historical health performance overview (5 year comparison)					
Indicator	2012-13	2013-14	2014-15	2015-16	2016-17
Microbiological	96.6%	100.0%	84.6%	48.9%	50.0%
Fluoride	n/a	n/a	n/a	n/a	n/a
Metals	n/a	100.0%	100.0%	97.7%	100.0%
Disinfection by products	n/a	n/a	n/a	n/a	n/a

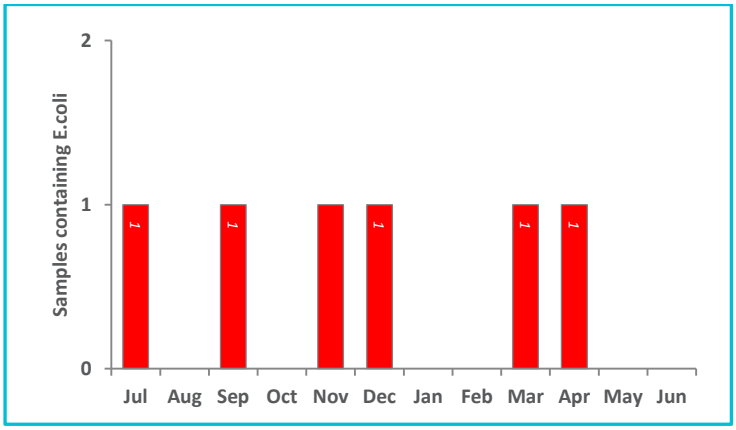
on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

- A BWA mitigates the risk to public health.

6.28.4. Analysis of current health performance (2016-17)

Figure 6.28.4-a Microbiological non-compliances by month (2016-17)



- Poor microbiological performance can be attributed to a lack of barriers and the susceptibility to changes in quality from the Unnamed creek.
- The risk to public health is mitigated through the communication of the Permanent BWA to customers.

Table 6.28.4-a Metals performance 2016-17

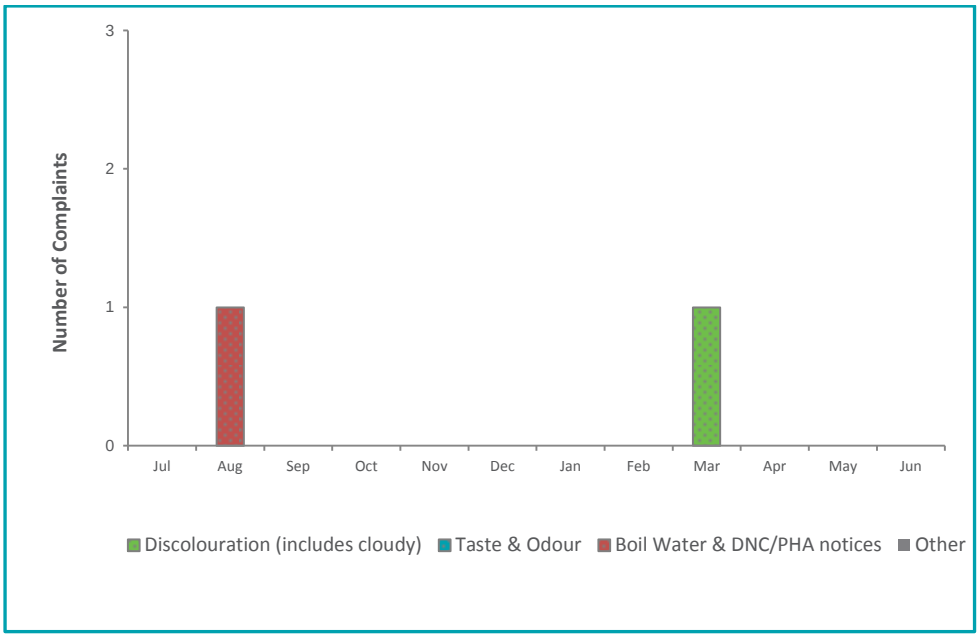
Metals – health regulated parameters (2016–17)								
Parameter	Limit	Unit	Samples	Exceedances	Performance %	Mean	Min.	Max.
Antimony	0.003	mg/L	4	0	100	<0.0005	<0.0005	<0.0005
Arsenic	0.01	mg/L	4	0	100	0.001	0.0005	0.0016
Barium	2	mg/L	4	0	100	0.0027	0.002	0.0037
Cadmium	0.002	mg/L	4	0	100	<0.0001	<0.0001	<0.0001
Chromium	0.05	mg/L	4	0	100	0.0008	0.0005	<0.001
Copper	2	mg/L	4	0	100	0.025	0.011	0.0358
Lead	0.01	mg/L	4	0	100	0.0019	0.0009	0.0026
Manganese	0.5	mg/L	4	0	100	0.0177	0.009	0.0271
Mercury	0.001	mg/L	4	0	100	0.00005	<0.00003	0.00006
Molybdenum	0.05	mg/L	4	0	100	0.0003	<0.0001	<0.0005
Nickel	0.02	mg/L	4	0	100	0.0004	0.0001	<0.0005
Selenium	0.01	mg/L	4	0	100	0.0011	0.0002	<0.002

6.28.5. Analysis of overall system performance (2016-17)

Table 6.28.5-a General physical performance 2016-17

General physical parameters (2016-17)					
Parameter	**Unit**	**Guideline Value**	**Mean**	**Min**	**Max**
Chlorine residual	mg/L	0.1 - <0.8	n/a	n/a	n/a
Colour True	HU	15	37.5	26	49
pH	Units	6.5 – 8.5	5.51	4.95	6.23
Turbidity	NTU	1	3.36	0.73	8.65

Figure 6.28.5-a Customer complaints by month and type



6.29. Grassy drinking water system

6.29.1. Summary of system status

Grassy drinking water system	
System status (as at 30 June 2017)	Potable
Total number of connections	156
Fluoride	n/a

Performance overview against health targets (2016-17)

Indicator	Outcome	Compliant	Target	Sampling Events	Non-conformances
Microbiological	100.0%	☑	98.0%	156	0
Fluoride	n/a	n/a	n/a	n/a	n/a
Metals	100.0%	☑	100.0%	14	0
DBPs	100.0%	☑	100.0%	2	0

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

Overall system performance (2016-17)

Indicator	Occurrences	Details
Customer complaints	0	
Public health warnings issued	0	
System incidents & issues	0	
Catchment and water source issues	0	

Current and future planned infrastructure and operational changes

Project	Description	Progress	Est. Delivery	Est. Spend ($'000)
King Island Solution	Treated water to the communities of Grassy and Currie.	Construction	FY18/19	$8,566.88

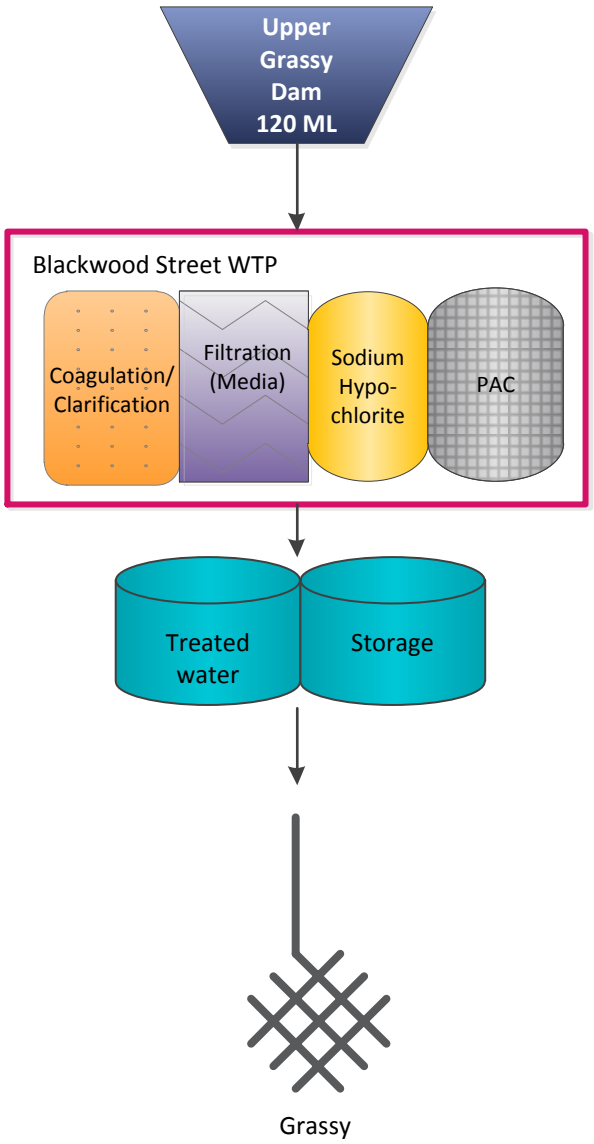


Figure 6.29.1-a Grassy system schematic

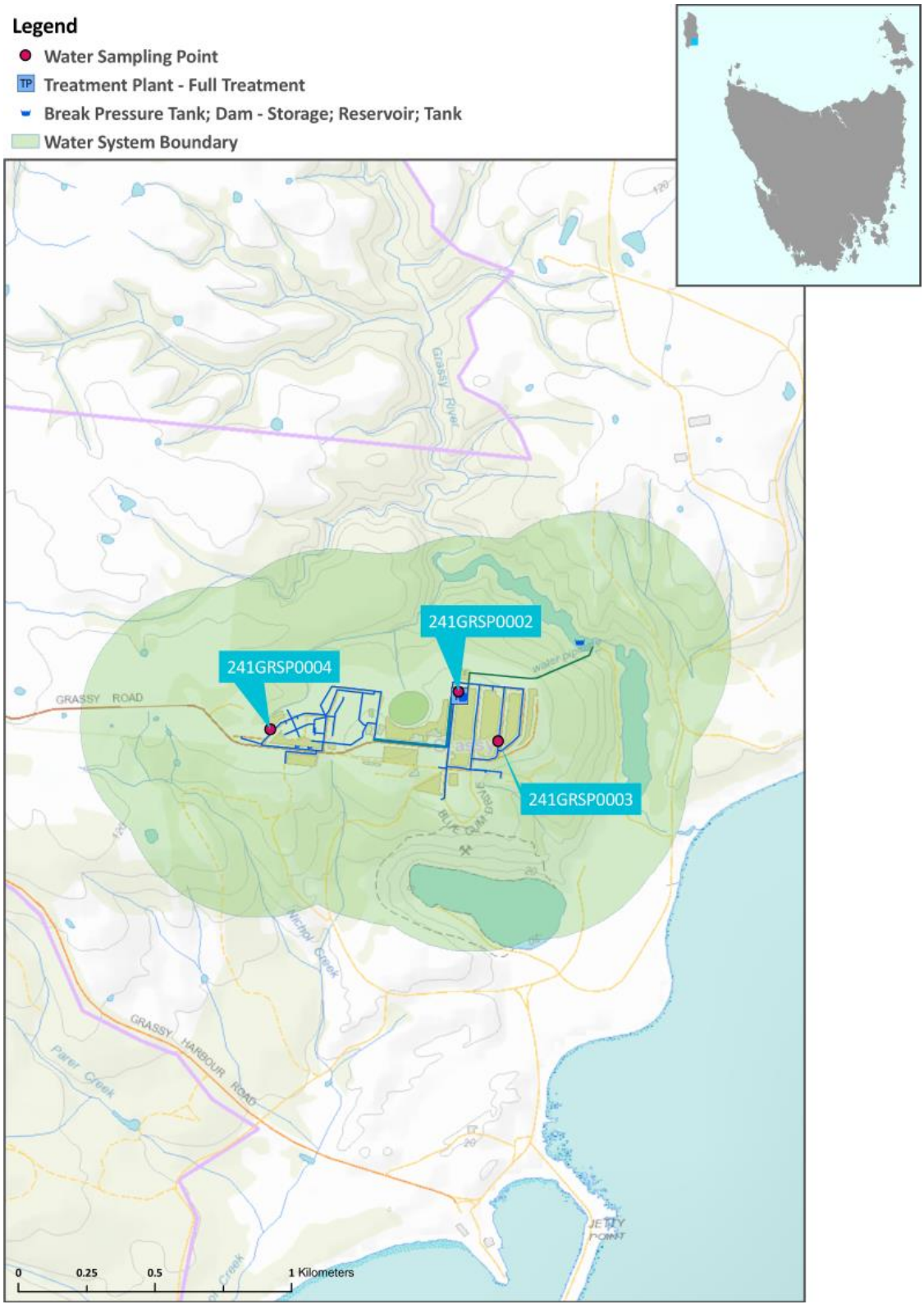


Figure 6.29.1-b Map of Grassy monitoring system

6.29.2. Summary of Annual Reticulation Compliance (2016–17)

Table 6.29.2-a Compliance sampling program

Planned compliance sampling program (2016-17)								
Site name	Site Code	Micros	Metals	DBP	Fluoride (Field)	Fluoride (Lab)	Chemical Profile	Process Chemicals
Grassy/Treated Water Storage	241GRSP0002	W	n/a	n/a	n/a	n/a	Q	M
Grassy/Sassafrass St Site 2	241GRSP0003	W	n/a	n/a	n/a	n/a	n/a	n/a
Grassy/Ti Tree Drive Site 3	241GRSP0004	W	Q	Q	n/a	n/a	Q	n/a
Number Planned Samples		**156**	**4**	**4**	**0**	**0**	**8**	**12**
Number Samples Tested		**156**	**3#**	**2^**	**0**	**0**	**4**	**11***

- #Quarterly metals missed in 2017 for site 241GRSP0004: Grassy/Ti Tree Drive Site 3
- ^ DBP missed for site 241GRSP0004: Grassy/Ti Tree Drive Site 3 in Q1 and Q4
- * Monthly Process Chemicals missed for site 241GRSP0002: Grassy/Treated Water Storage in June 2017.

6.29.3. Summary of current and historic performance (2012-17)

Table 6.29.3-a Historical health performance overview (5 year comparison)

Historical health performance overview (5 year comparison)					
Indicator	2012-13	2013-14	2014-15	2015-16	2016-17
Microbiological	100.0%	100.0%	99.4%	100.0%	100.0%
Fluoride	n/a	n/a	n/a	n/a	n/a
Metals	n/a	100.0%	100.0%	100.0%	100.0%
Disinfection by products	n/a	100.0%	100.0%	100.0%	100.0%

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

6.29.4. Analysis of current health performance (2016-17)

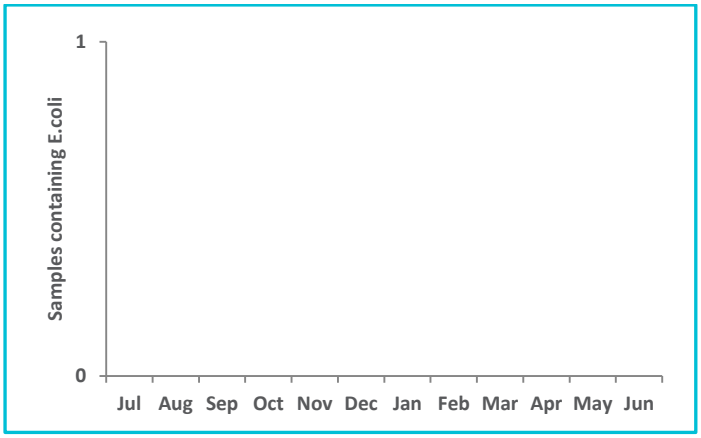


Figure 6.29.4-a Microbiological non-compliances by month (2016-17)

Table 6.29.4-a Metals performance 2016-17

Metals – health regulated parameters (2016–17)								
Parameter	**Limit**	**Unit**	**Samples**	**Exceedances**	**Performance %**	**Mean**	**Min.**	**Max.**
Antimony	0.003	mg/L	3	0	100	0.0007	<0.0005	<0.001
Arsenic	0.01	mg/L	14	0	100	0.0006	<0.0003	0.0011
Barium	2	mg/L	14	0	100	0.0061	0.0037	0.0116
Cadmium	0.002	mg/L	14	0	100	0.0002	<0.0001	0.0005
Chromium	0.05	mg/L	14	0	100	0.0004	<0.0001	<0.001
Copper	2	mg/L	3	0	100	0.0138	0.0009	0.0236
Lead	0.01	mg/L	14	0	100	0.0004	<0.0001	<0.001
Manganese	0.5	mg/L	14	0	100	0.0212	0.0031	0.0473
Mercury	0.001	mg/L	14	0	100	0.00015	<0.00003	<0.001
Molybdenum	0.05	mg/L	3	0	100	0.0025	0.0003	0.0062
Nickel	0.02	mg/L	14	0	100	0.001	<0.0001	0.0021
Selenium	0.01	mg/L	14	0	100	0.0004	<0.0001	<0.001

- # Quarterly metals missed in 2017 for site 241GRSP0004: Grassy/Ti Tree Drive Site 3.
- * Monthly Process Chemicals missed for site 241GRSP0002: Grassy/Treated Water Storage in June 2017.

Table 6.29.4-b Disinfection by product performance 2016-17

Disinfection by products – health regulated parameters (2016–17)								
Parameter	Limit	Unit	Samples	Exceedances	Performance %	Mean	Min.	Max.
Dichloroacetic acid	100	µg/L	2	0	100	5	3	7
Monochloroacetic acid	150	µg/L	2	0	100	<3	<3	<3
Trichloroacetic acid	100	µg/L	2	0	100	3	2	4
Total trihalomethanes	250	µg/L	2	0	100	88.5	86	91

6.29.5. Analysis of overall system performance (2016-17)

Table 6.29.5-a General physical performance 2016-17

General physical parameters (2016-17)					
Parameter	Unit	Guideline Value	Mean	Min	Max
Chlorine residual	mg/L	0.1 - <0.8	0.57	0.27	1.01
Colour True	HU	15	<1	<1	1
pH	Units	6.5 – 8.5	7.31	7.1	7.51
Turbidity	NTU	1	0.12	0.06	0.58

6.30. Greater Hobart drinking water system

6.30.1. Summary of system status

Greater Hobart drinking water system	
System status (as at 30 June 2017)	Potable
Total number of connections	100,348
Fluoride	Lake Fenton: Sodium fluoride All others: Fluorosilicic acid

Performance overview against health targets (2016-17)

Indicator	Outcome	Compliant	Target	Sampling Events	Non-conformances
Microbiological	99.9%	☑	98.0%	5484	5
Fluoride	100.0%	☑	100.0%	510	0
Metals	99.9%	☒	100.0%	56	1
DBPs	100.0%	☑	100.0%	220	0

on or below target within 10% of target greater than 10% outside target

Refer to 5.2 Performance indicators against health targets

Overall system performance (2016-17)

Indicator	Occurrences	Details
Customer complaints	475	Discolouration, taste & odour, boil water & DNC alerts, other (illness).
Public health warnings issued	2	BWA issued for National Park, Fentonbury and Westerway - 15/7/2016 to 1/08/2016 and 30/09/2016 ongoing.
System incidents & issues	6	*E.coli* and Metals exceedances.
Catchment and water source issues	0	

Current and future planned infrastructure and operational changes

Project	Description	Progress	Est. Delivery	Est. Spend ($'000)
Bryn Estyn Major Upgrade / Replacement	Replacement and upgrades of plant components to improve compliance with relevant guidelines	Strategy	FY2021-22	$156,960.19
Mangalore Chlorination Station	Installation of a permanent chlorination station to ensure disinfection into Mangalore, Bagdad and Kempton	Tender	FY2017-18	$440

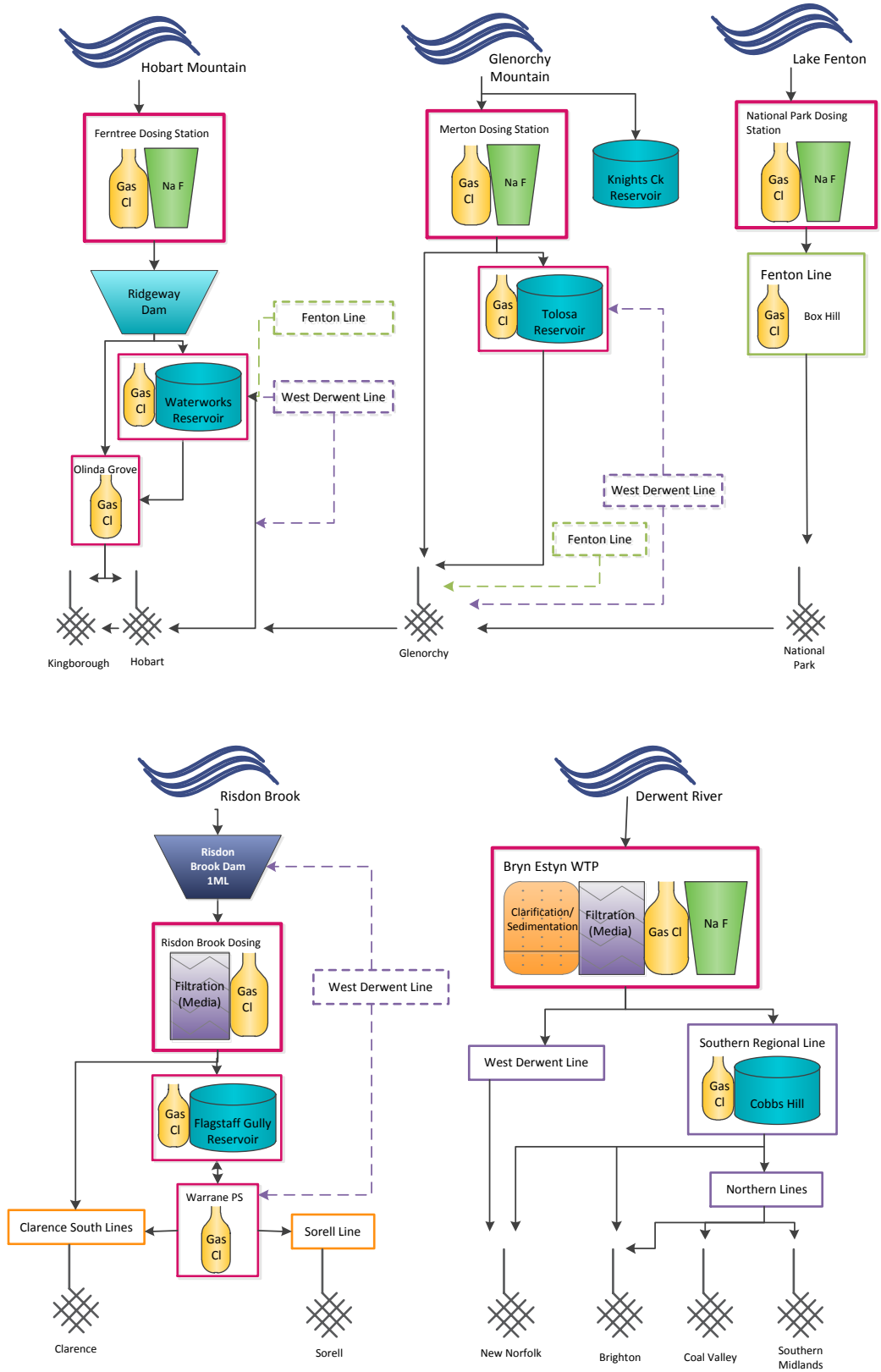


Figure 6.30.1-a Greater Hobart system schematic

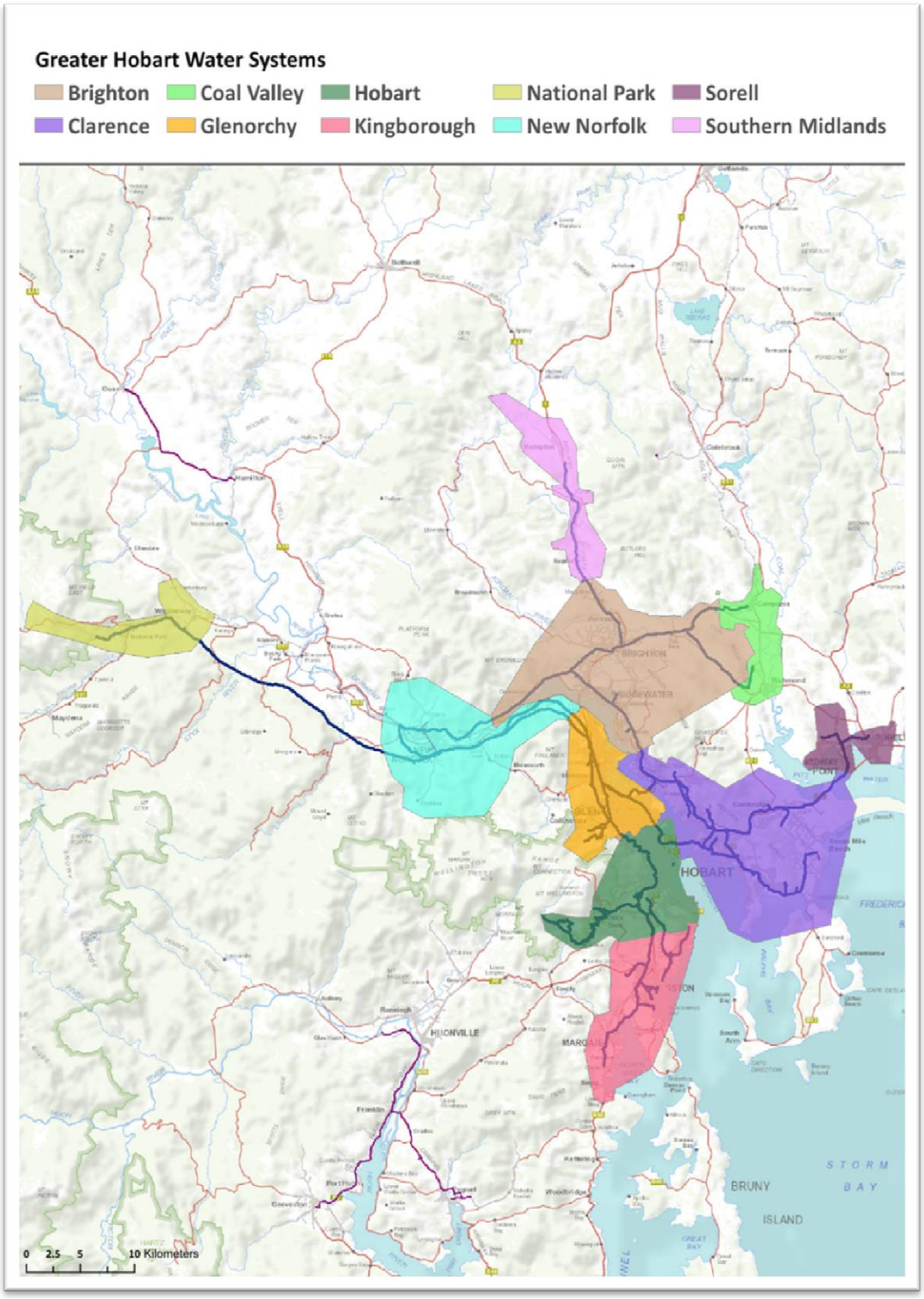


Figure 6.30.1-b Geographic layout of Greater Hobart monitoring system

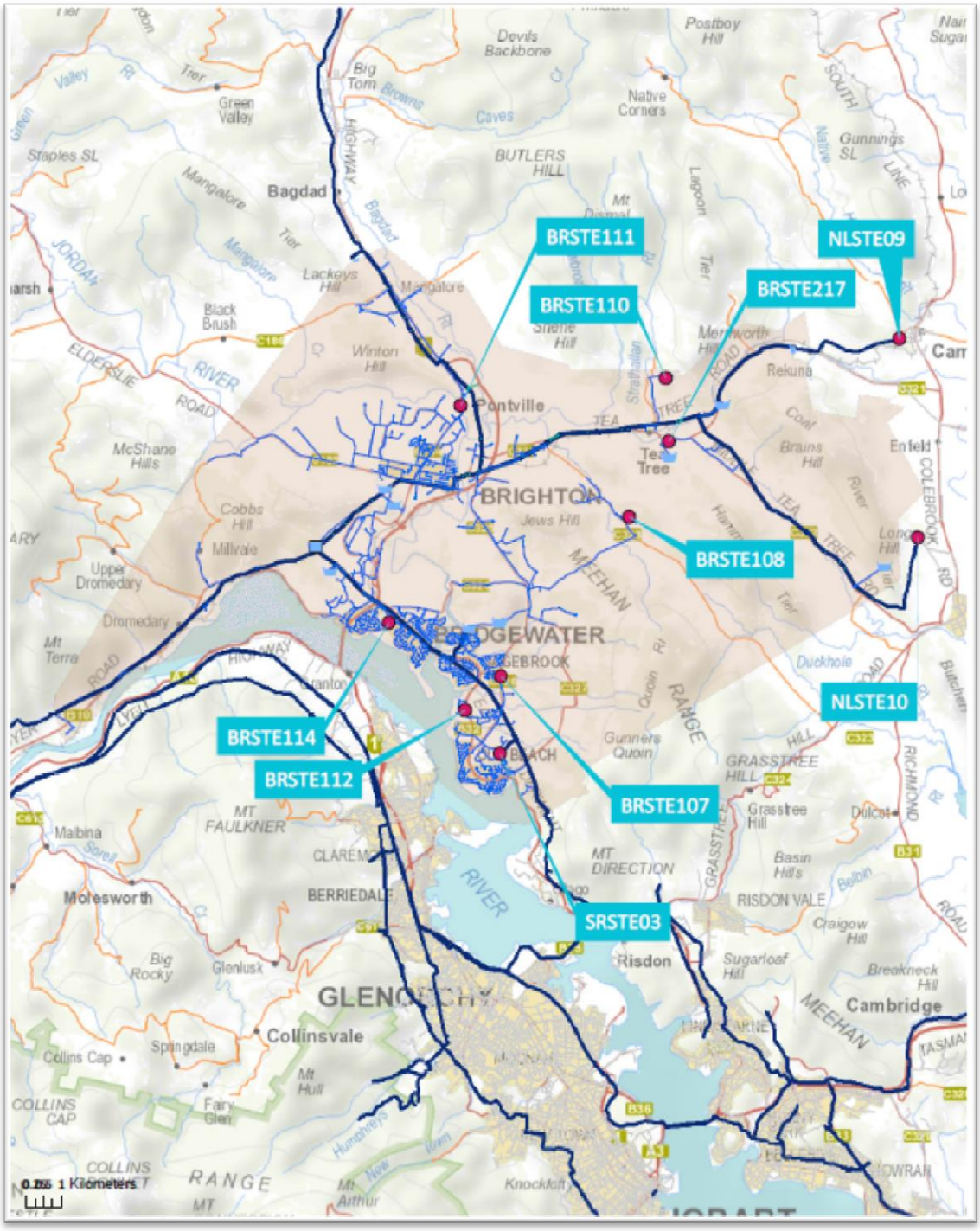


Figure 6.30.1-c Map of Brighton monitoring zone

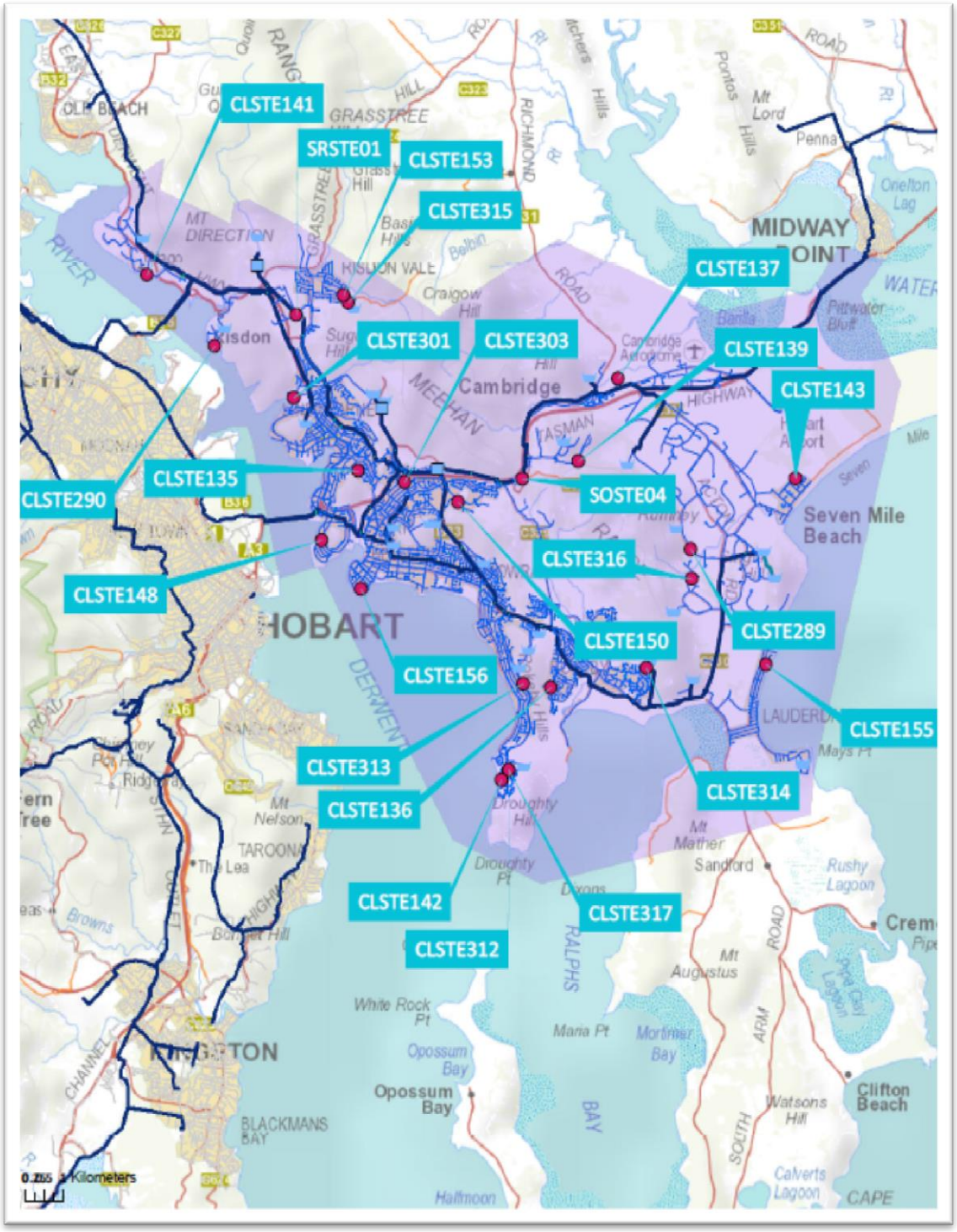


Figure 6.30.1-d Map of Clarence monitoring zone

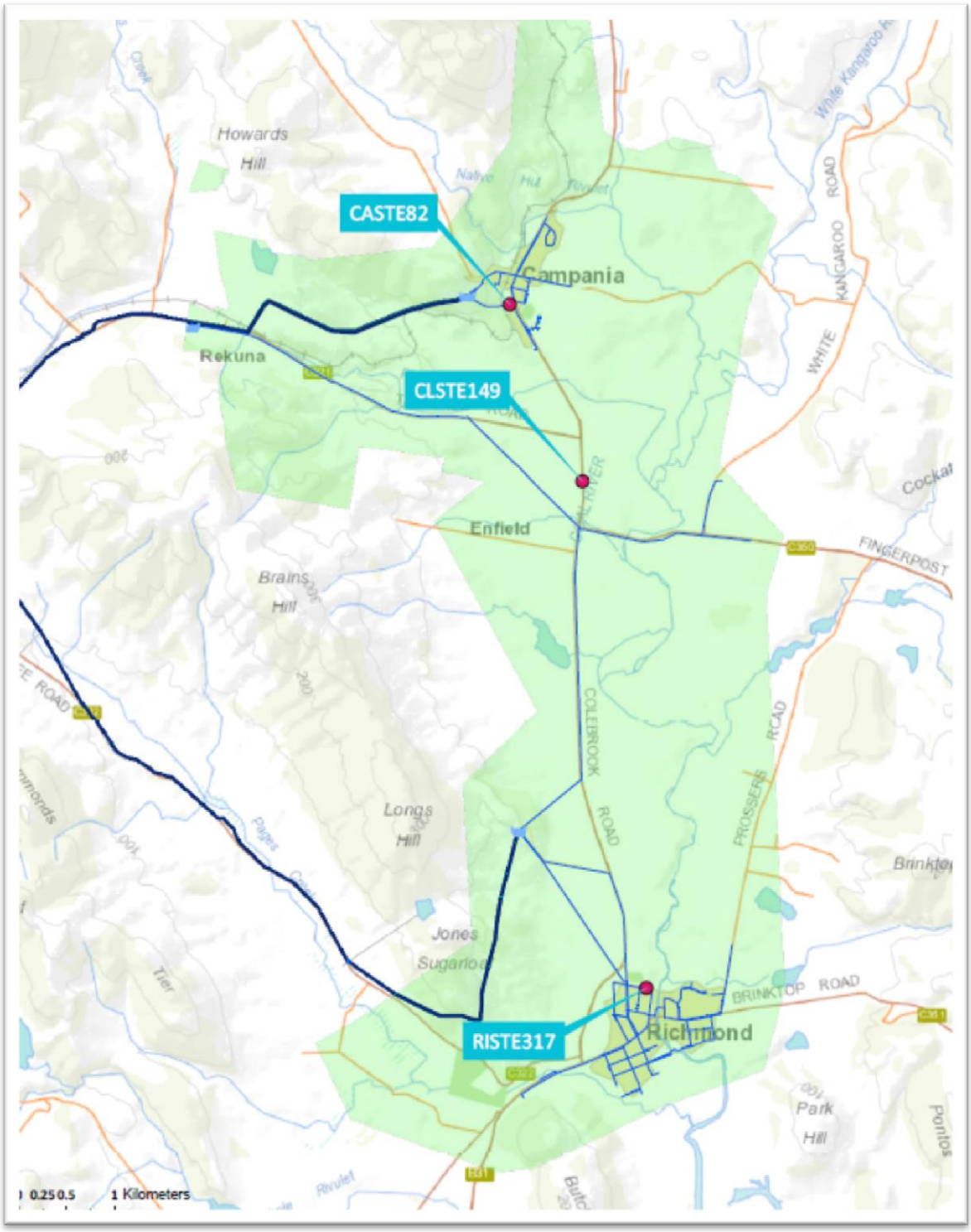


Figure 6.30.1-e Map of Coal Valley monitoring zone

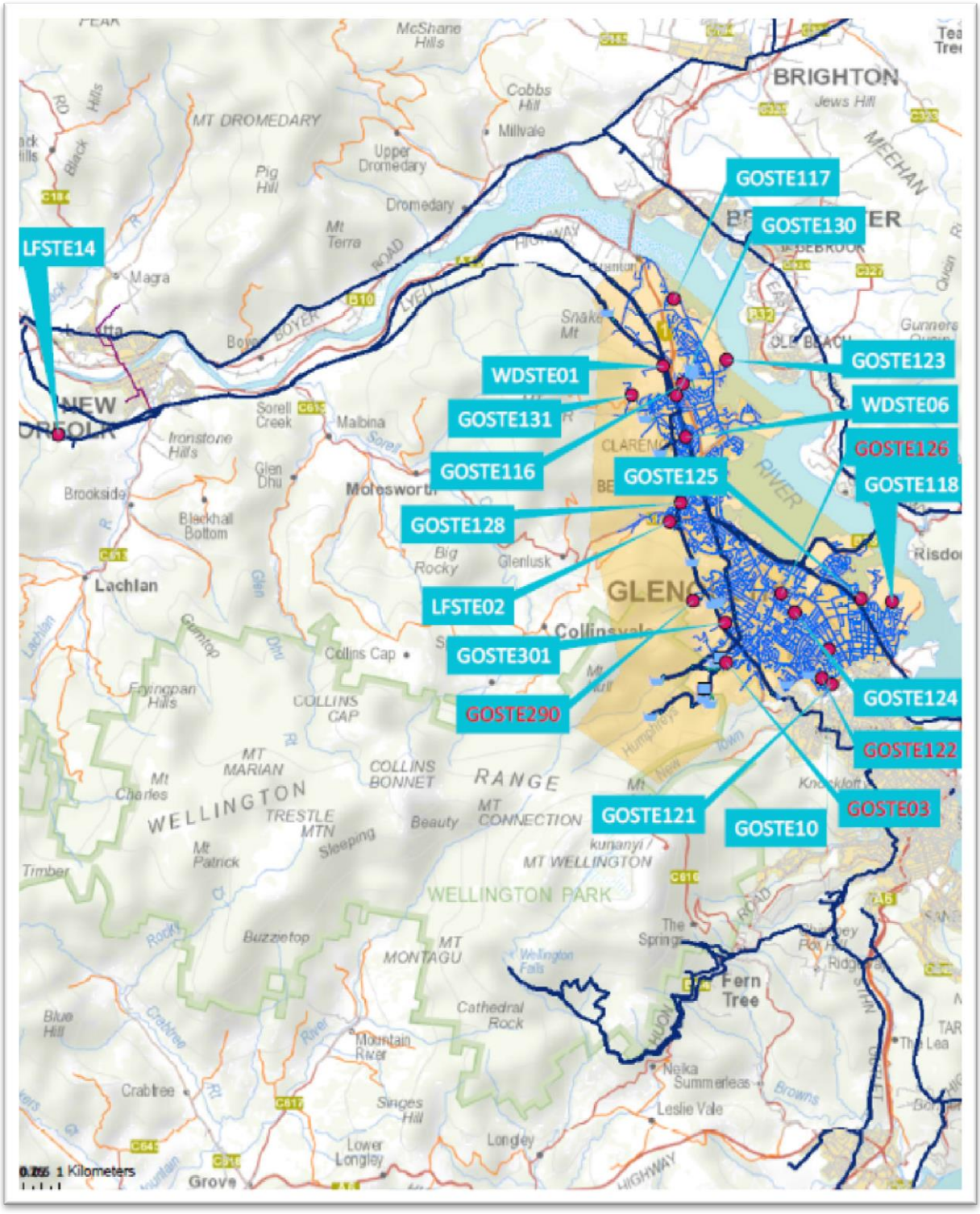


Figure 6.30.1-f Map of Glenorchy monitoring zone

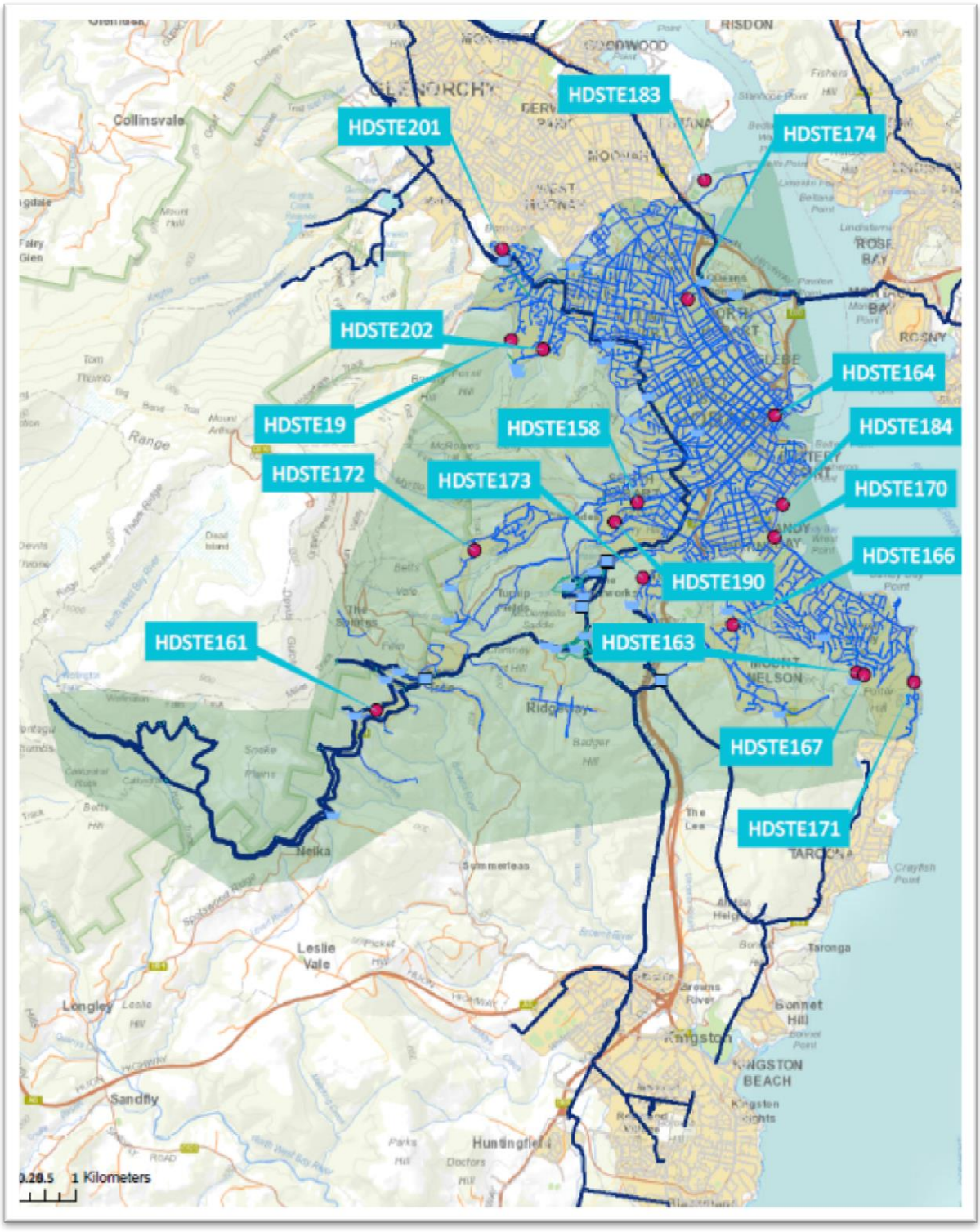


Figure 6.30.1-g Map of Hobart monitoring zone

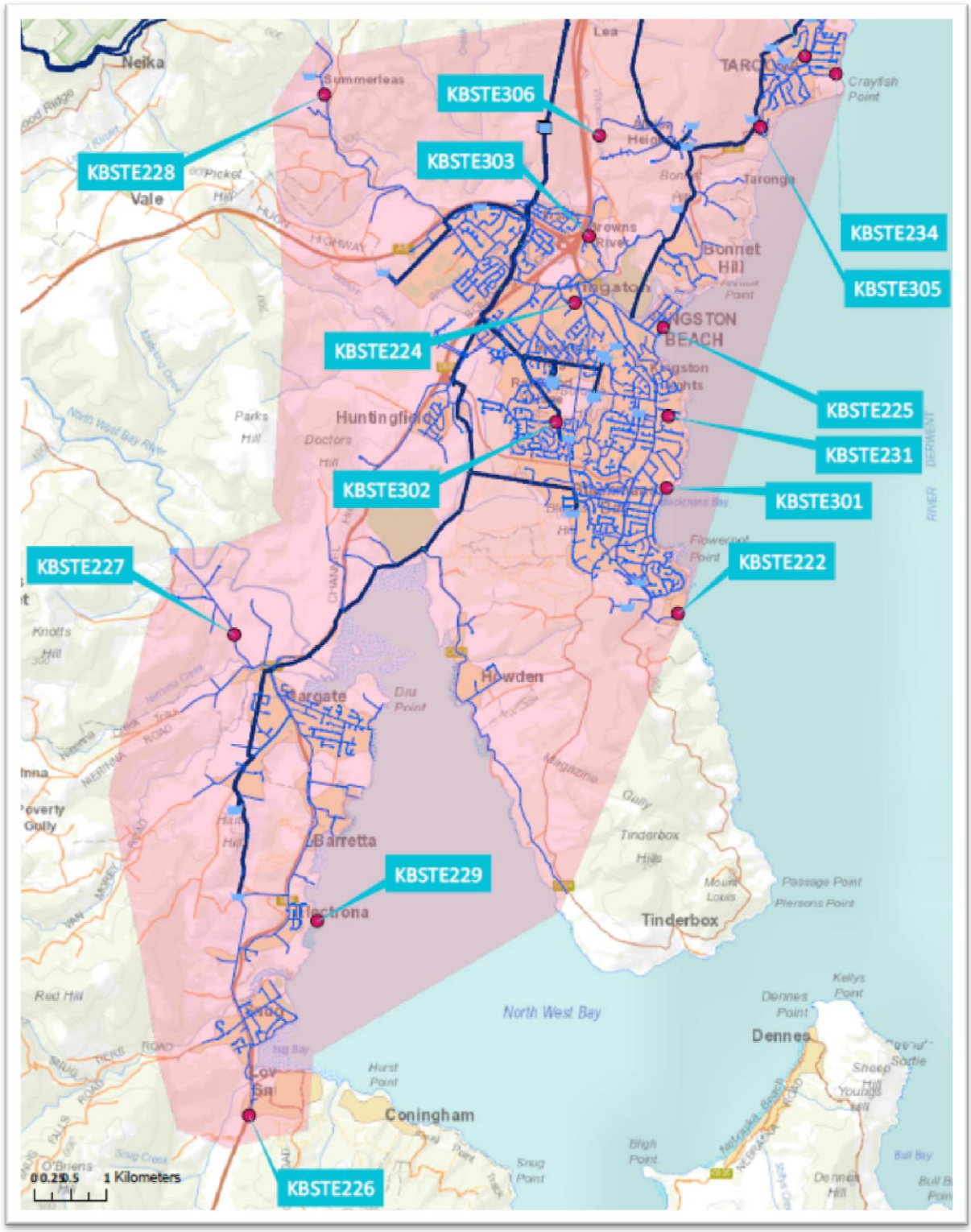


Figure 6.30.1-h Map of Kingborough monitoring zone

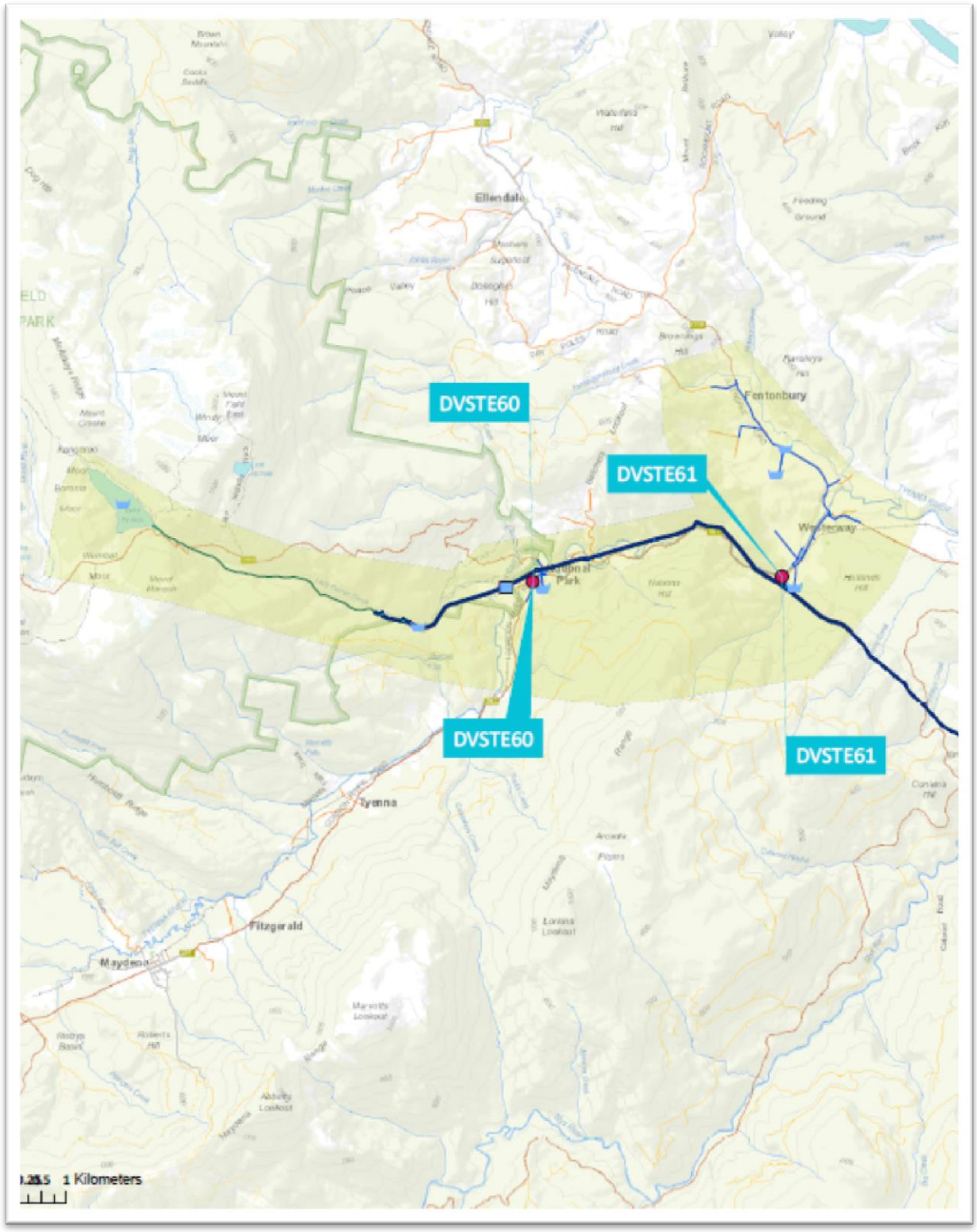


Figure 6.30.1-i Map of National Park monitoring zone

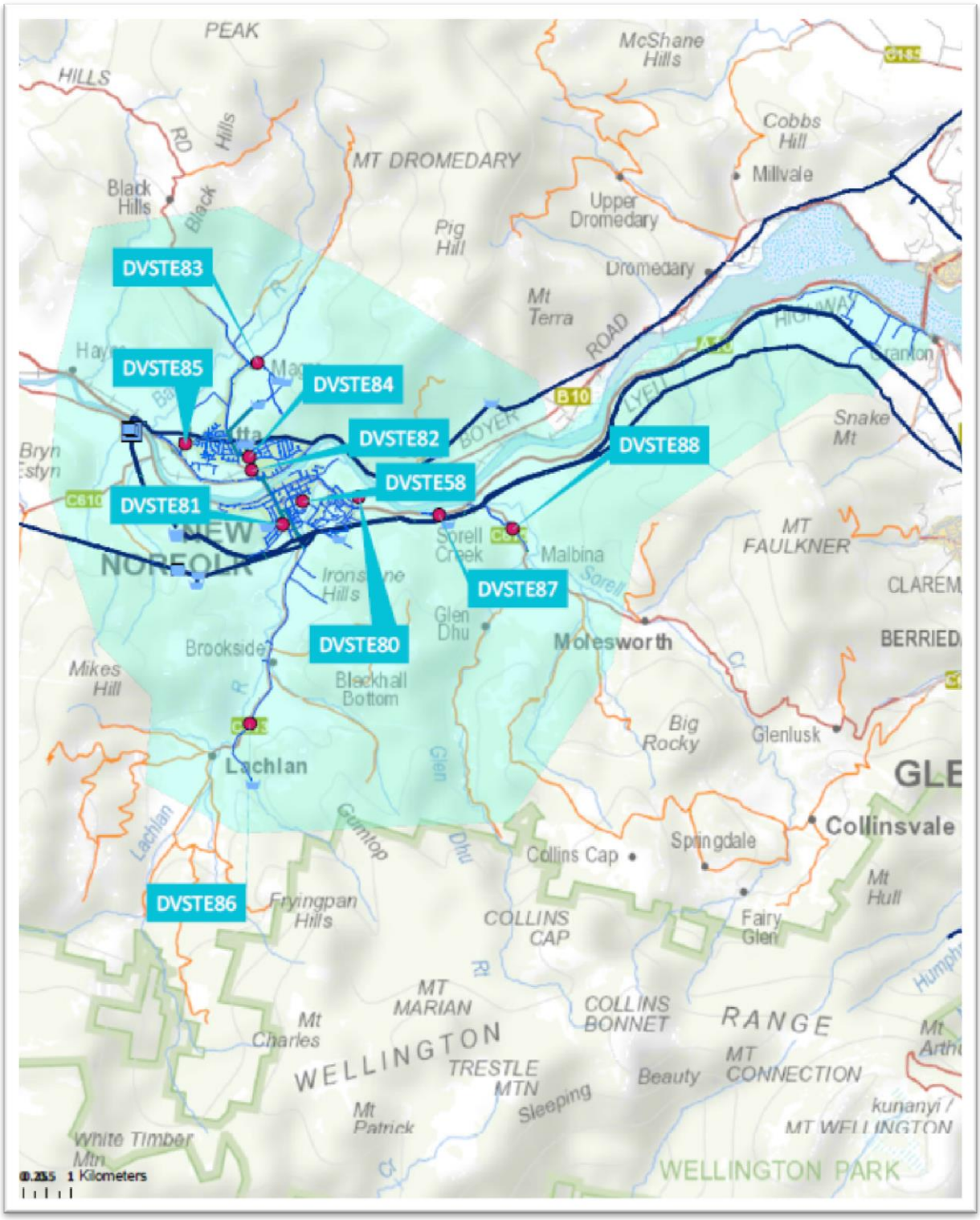


Figure 6.30.1-j Map of New Norfolk monitoring zone

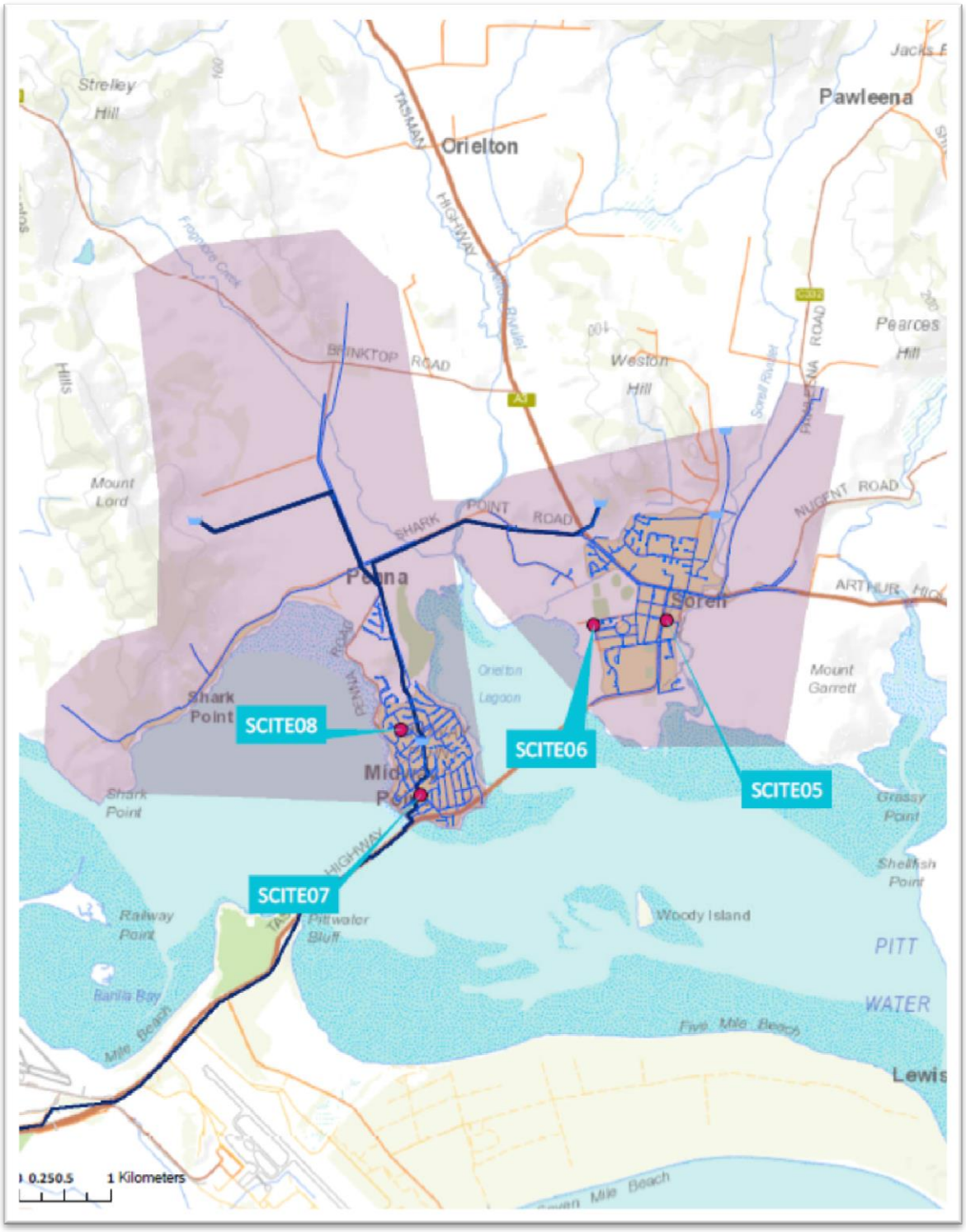


Figure 6.30.1-k Map of Sorell monitoring zone

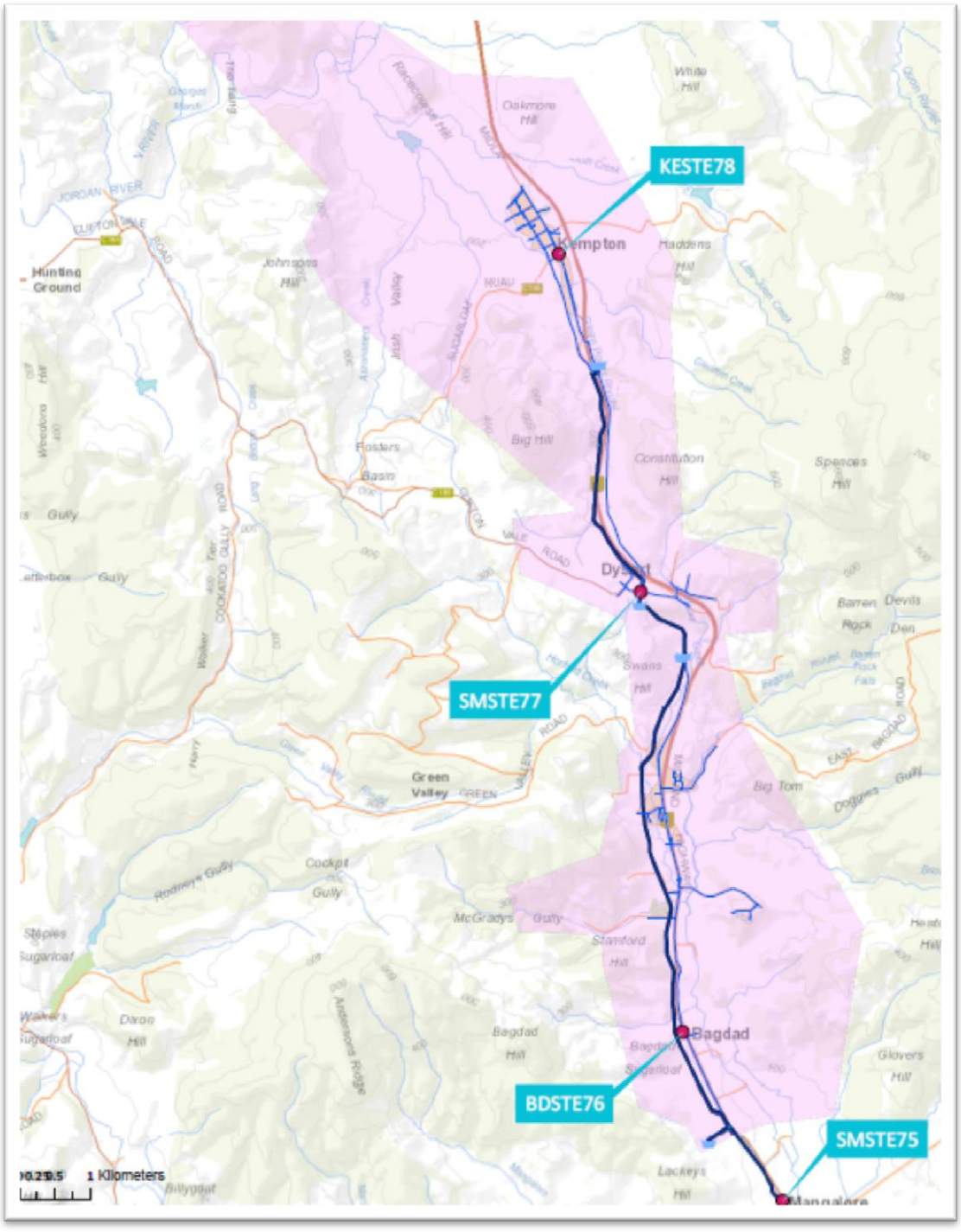


Figure 6.30.1-l Map of Southern Midlands monitoring zone

6.30.2. Summary of Annual Reticulation Compliance (2016–17)

The Greater Hobart drinking water system is the largest system in Tasmania consisting of 10 supply zones, supplying 100,348 connections and approximately 46% of TasWater's total population served.

The monitoring system is supplied from multiple sources and has multiple interconnections enabling TasWater to supply customers with drinking water from several different catchments. There are 10 supply zones in the Greater Hobart system including Brighton, Clarence, Coal Valley, Glenorchy, Hobart, Kingborough, National Park, New Norfolk, Sorell and Southern Midlands.

The Greater Hobart compliance sampling program consists of 10 separate programs based on the 10 supply zones.

Table 6.30.2-a Compliance sampling program – Brighton

Planned compliance sampling program (2016-17)								
Site name	Site Code	Micros	Metals	DBP	Fluoride (Field)	Fluoride (Lab)	Chemical Profile	Process Chemicals
Old Beach/238 Old Beach Rd, Sample Tap	BRSTE107	W	n/a	n/a	n/a	n/a	n/a	n/a
Tea Tree/Glen Rose Dr, Sample Tap	BRSTE108	W	n/a	n/a	n/a	n/a	n/a	n/a
Tea Tree/Merrieworth Rd, Sample tap	BRSTE110	W	n/a	n/a	n/a	n/a	n/a	n/a
Pontville, Old council chambers/Sample tap	BRSTE111	W	Q	Q	W	M	Q	n/a
Compton Downs, St Anne's/Sample Tap	BRSTE112	W	n/a	n/a	n/a	n/a	n/a	n/a
Jordan River/School, Sample Tap	BRSTE114	W	n/a	n/a	n/a	n/a	n/a	n/a
Vineyard Dr Tanks	BRSTE217	W	n/a	n/a	n/a	n/a	n/a	n/a
Campania Res	NLSTE09	W	n/a	n/a	n/a	n/a	n/a	n/a
Richmond Res	NLSTE10	W	n/a	n/a	n/a	n/a	n/a	n/a
Old Beach Res Sample Tap	SRSTE03	W	n/a	n/a	n/a	n/a	n/a	n/a
Number Planned Samples		**506**	**4**	**4**	**52**	**12**	**4**	**0**

Number Samples Tested	**506**	**4**	**4**	**52**	**12**	**4**	**0**

Table 6.30.2-b Compliance sampling program – Clarence

Planned compliance sampling program (2016-17)								
Site name	**Site Code**	**Micros**	**Metals**	**DBP**	**Fluoride (Field)**	**Fluoride (Lab)**	**Chemical Profile**	**Process Chemicals**
Lindisfarne, 11 Elwood Drive/Sample Tap	CLSTE135	W	n/a	n/a	n/a	n/a	n/a	n/a
Rokeby, 126 Tollard Drive/Sample Tap	CLSTE136	W	n/a	n/a	n/a	n/a	n/a	n/a
Cambridge, 13 Maxwells Rd/Sample Tap	CLSTE137	W	n/a	n/a	n/a	n/a	n/a	n/a
Mt Rumney, 193 Grahams Rd/Sample Tap	CLSTE139	W	n/a	n/a	n/a	n/a	n/a	n/a
Otago, 21 Otago Bay Rd/Sample Tap	CLSTE141	W	n/a	n/a	n/a	n/a	n/a	n/a
Tranmere, 21 Vaughan Court/Sample Tap	CLSTE142	W	Q	Q	n/a	n/a	Q	n/a
Seven Mile Beach, 24 Leyden Avenue/Sample Tap	CLSTE143	W	n/a	n/a	n/a	n/a	n/a	n/a
Rosny, 5 Hesket court/Sample Tap	CLSTE148	W	n/a	n/a	n/a	n/a	n/a	n/a
Mornington ,54 Mornington Rd/Sample Tap	CLSTE150	W	n/a	n/a	n/a	n/a	n/a	n/a
Risdon Vale, 87 Gardenia Rd/Sample Tap	CLSTE153	W	n/a	n/a	n/a	n/a	n/a	n/a
Lauderdale, crn Balook st & Hadlow St/Sample Tap	CLSTE155	W	Q	Q	W	M	Q	n/a
Bellerive, 20 Gunning St/Sample Tap	CLSTE156	W	n/a	n/a	n/a	n/a	n/a	n/a
Acton Park, 222 Acton Drive/PRV Shed Sample Tap	CLSTE289	W	n/a	n/a	n/a	n/a	n/a	n/a
Risdon, 26 Saundersons Rd/Sample tap	CLSTE290	W	n/a	n/a	n/a	n/a	n/a	n/a
Geilston Bay, Boat Club	CLSTE301	W	n/a	n/a	n/a	n/a	n/a	n/a
Warrane Sports Centre crn Dampier & Blight St	CLSTE303	W	n/a	n/a	n/a	n/a	n/a	n/a

10 Norla Street	CLSTE312	W	n/a	n/a	n/a	n/a	n/a	n/a
Tranmere/10 Spinnaker Crs	CLSTE317	W	n/a	n/a	n/a	n/a	n/a	n/a
598 Oceana Drive	CLSTE313	W	n/a	n/a	n/a	n/a	n/a	n/a
21 Niranda Court	CLSTE314	W	n/a	n/a	n/a	n/a	n/a	n/a
Matipo St Risdon Vale PS	CLSTE315	W	n/a	n/a	n/a	n/a	n/a	n/a
118 Tara Drive	CLSTE316	W	n/a	n/a	n/a	n/a	n/a	n/a
Tunnel Hill RES	SOSTE04	W	n/a	n/a	n/a	n/a	n/a	n/a
Risdon Vale RES	SRSTE01	W	n/a	n/a	n/a	n/a	n/a	n/a
Number Planned Samples		**1166**	**8**	**8**	**52**	**12**	**8**	**0**
Number Samples Tested		**1166**	**8**	**8**	**52**	**12**	**8**	**0**

Table 6.30.2-c Compliance sampling program – Coal Valley

Planned compliance sampling program (2016-17)								
Site name	**Site Code**	**Micros**	**Metals**	**DBP**	**Fluoride (Field)**	**Fluoride (Lab)**	**Chemical Profile**	**Process Chemicals**
Richmond, 12 Victoria St/Fire Station Sample Tap	RISTE317	W	Q	Q	W	M	Q	n/a
Campania, Public toilet/Sample Post - Tennis Court	CASTE82	W	Q	Q	n/a	n/a	Q	n/a
Campania, 505 Colebrook Rd/Sample tap	CLSTE149	W	n/a	n/a	n/a	n/a	n/a	n/a
Number Planned Samples		**156**	**8**	**8**	**52**	**12**	**8**	**0**
Number Samples Tested		**156**	**8**	**7***	**52**	**12**	**8**	**0**

** All DBP results missing for site RISTE317on 6/2/17.*

Table 6.30.2-d Compliance sampling program – Glenorchy

Planned compliance sampling program (2016-17)								
Site name	Site Code	Micros	Metals	DBP	Fluoride (Field)	Fluoride (Lab)	Chemical Profile	Process Chemicals
Glenorchy, 22 Jackson Rd	GOSTE301	W	n/a	n/a	n/a	n/a	n/a	n/a
Glenorchy High Level Sample Tap	GOSTE03	W	n/a	n/a	n/a	n/a	n/a	n/a
St Thereses/Sample Tap	GOSTE10	W	n/a	n/a	n/a	n/a	n/a	n/a
Claremont, 12 Chatterton Crt/Sample Tap	GOSTE116	W	n/a	n/a	n/a	n/a	n/a	n/a
Austins Ferry, 1 Sharron Drive/Sample Tap	GOSTE117	W	n/a	n/a	n/a	n/a	n/a	n/a
Lutana, 10 Birch Rd/Sample Tap	GOSTE118	W	n/a	n/a	n/a	n/a	n/a	n/a
Moonah, 2 Gerrard St/Sample Tap	GOSTE121	W	Q	Q	n/a	n/a	Q	n/a
Moonah, 2/10 Dawkins Court/Sample Tap	GOSTE122	W	n/a	n/a	n/a	n/a	n/a	n/a
Austins Ferry, 20 Wendourie Parade/Sample Tap	GOSTE123	W	n/a	n/a	n/a	n/a	n/a	n/a
Derwent Park, 49 Windsor St/Sample Tap	GOSTE124	W	n/a	n/a	n/a	n/a	n/a	n/a
Goodwood, Gepp Parade Outside Public Toilets/Sample tap	GOSTE125	W	n/a	n/a	n/a	n/a	n/a	n/a
Glenorchy City Council chambers/Sample Tap	GOSTE126	W	n/a	n/a	n/a	n/a	n/a	n/a
Chigwell, Shop 2 Allunga Rd /Sample Tap	GOSTE128	W	n/a	n/a	n/a	n/a	n/a	n/a
Austins Ferry Primary School/New Sample Tap	GOSTE130	W	Q	Q	W	M	Q	n/a
Claremont, 59 Toffolis Road/Garden Tap	GOSTE131	W	n/a	n/a	n/a	n/a	n/a	n/a
Montrose, 1 Beneve Court/Sample Tap	GOSTE290	W	n/a	n/a	n/a	n/a	n/a	n/a
Chigwell, Res	LFSTE02	W	n/a	n/a	n/a	n/a	n/a	n/a

Box Hill Fenton Res	LFSTE14	W	n/a	n/a	n/a	n/a	n/a	n/a
Hilton Rd	WDSTE01	W	n/a	n/a	n/a	n/a	n/a	n/a
Claremont/Box Hill Road	WDSTE06	W	n/a	n/a	n/a	n/a	n/a	n/a
Number Planned Samples		**1030**	**8**	**8**	**52**	**12**	**8**	**0**
Number Samples Tested		**1030**	**8**	**8**	**52**	**12**	**8**	**0**

Table 6.30.2-e Compliance sampling program – Hobart

Planned compliance sampling program (2016-17)								
Site name	**Site Code**	**Micros**	**Metals**	**DBP**	**Fluoride (Field)**	**Fluoride (Lab)**	**Chemical Profile**	**Process Chemicals**
Sth Hobart, Wellesley Park	HDSTE190	W	n/a	n/a	n/a	n/a	n/a	n/a
Bentley Pk crn Girrabong & Bentley Rd	HDSTE201	W	n/a	n/a	n/a	n/a	n/a	n/a
50B Pottery Rd	HDSTE202	W	n/a	n/a	n/a	n/a	n/a	n/a
Sth Hobart, 56 Cascade Rd/Sample Tap	HDSTE158	W	n/a	n/a	n/a	n/a	n/a	n/a
Fern Tree, 9 Grays Rd/Sample tap	HDSTE161	W	n/a	n/a	n/a	n/a	n/a	n/a
Sandy Bay, 8 Lindeith Crt/Sample tap	HDSTE163	W	n/a	n/a	n/a	n/a	n/a	n/a
Hobart/Argyle St Sample Tap	HDSTE164	W	n/a	n/a	n/a	n/a	n/a	n/a
Mt Nelson, Nelson Rd/Tangara Rd/Sample tap	HDSTE166	W	n/a	n/a	n/a	n/a	n/a	n/a
Sandy Bay, 26 Nicholas Drive/Sample tap	HDSTE167	W	n/a	n/a	n/a	n/a	n/a	n/a
Sandy Bay, 345 Sandy Bay rd/Sample tap	HDSTE170	W	n/a	n/a	n/a	n/a	n/a	n/a
Sandy Bay/Marieville Esp	HDSTE184	W	n/a	n/a	n/a	n/a	n/a	n/a
Sandy Bay, 762 Sandy Bay rd/Sample tap	HDSTE171	W	Q	Q	W	M	Q	n/a
Sth Hobart, 317 Strickland Ave/Sample Tap	HDSTE172	W	n/a	n/a	n/a	n/a	n/a	n/a
Tolmans Hill/9 Woodridge Rd	HDSTE173	W	n/a	n/a	n/a	n/a	n/a	n/a

Sample tap								
Hobart/Boa Vista Rd	HDSTE174	W	n/a	n/a	n/a	n/a	n/a	n/a
New Town, SP Lab	HDSTE183	W	n/a	n/a	n/a	n/a	n/a	n/a
Lenah Valley/opp 70 Brushy Creek Rd	HDSTE19	W	n/a	n/a	n/a	n/a	n/a	n/a
Lenah Valley/crn Copley and Pottery Rd	HDSTE205	W	n/a	n/a	n/a	n/a	n/a	n/a
Number Planned Samples		**828**	**4**	**4**	**52**	**12**	**4**	**0**
Number Samples Tested		**828**	**4**	**4**	**52**	**12**	**4**	**0**

Table 6.30.2-e Compliance sampling program – Kingborough

Planned compliance sampling program (2016-17)								
Site name	**Site Code**	**Micros**	**Metals**	**DBP**	**Fluoride (Field)**	**Fluoride (Lab)**	**Chemical Profile**	**Process Chemicals**
Blackmans Bay Beach opp 2 Esplanade	KBSTE301	W	n/a	n/a	n/a	n/a	n/a	n/a
Kingston Fire & Ambulance Station, crn Redwood Rd & Hawthorn Drive	KBSTE302	W	n/a	n/a	n/a	n/a	n/a	n/a
Tradelink 50 Browns Road	KBSTE303	W	n/a	n/a	n/a	n/a	n/a	n/a
St Lukes Church 2 Coolamon Rd	KBSTE304	W	n/a	n/a	n/a	n/a	n/a	n/a
Baringa Rd Bus Stop	KBSTE305	W	n/a	n/a	n/a	n/a	n/a	n/a
28 Albion Heights Drive	KBSTE306	W	n/a	n/a	n/a	n/a	n/a	n/a
Blackmans Bay/Sample Tap (at STP)	KBSTE222	W	n/a	n/a	n/a	n/a	n/a	n/a
Kingston Primary School, Boronia Low Level/Sample tap	KBSTE224	W	n/a	n/a	n/a	n/a	n/a	n/a
Kingston Beach/Foreshore Sample Tap	KBSTE225	W	Q	Q	W	M	Q	n/a
Snug, Frosts Rd - Museum Channel Highway,/Sample tap	KBSTE226	W	n/a	n/a	n/a	n/a	n/a	n/a
Margate, Sandfly Rd, Margate Cemetry/Sample tap	KBSTE227	W	n/a	n/a	n/a	n/a	n/a	n/a
Kingborough, Scotts Rd/Sample tap	KBSTE228	W	n/a	n/a	n/a	n/a	n/a	n/a

Electrona/Dickson St (at STP)	KBSTE229	W	n/a	n/a	n/a	n/a	n/a	n/a
Kingston Beach, St Aloysius, Mirramar Park/Sample tap	KBSTE231	W	n/a	n/a	n/a	n/a	n/a	n/a
Taroona/Soccer Field Sample Tap	KBSTE234	W	Q	Q	n/a	n/a	Q	n/a
Number Planned Samples		**770**	**8**	**8**	**52**	**12**	**8**	**0**
Number Samples Tested		**770**	**8**	**8**	**52**	**12**	**8**	**0**

Table 6.30.2-f Compliance sampling program – National Park

Planned compliance sampling program (2016-17)								
Site name	**Site Code**	**Micros**	**Metals**	**DBP**	**Fluoride (Field)**	**Fluoride (Lab)**	**Chemical Profile**	**Process Chemicals**
National Park Hotel/Sample Tap	DVSTE60	W	n/a	n/a	n/a	n/a	n/a	n/a
Westerway Community Centre/Sample Tap	DVSTE61	W	Q	Q	W	M	Q	n/a
Number Planned Samples		**104**	**4**	**4**	**52**	**12**	**4**	**0**
Number Samples Tested		**104**	**4**	**4**	**52**	**12**	**4**	**0**

Table 6.30.2-g Compliance sampling program – New Norfolk

Planned compliance sampling program (2016-17)								
Site name	**Site Code**	**Micros**	**Metals**	**DBP**	**Fluoride (Field)**	**Fluoride (Lab)**	**Chemical Profile**	**Process Chemicals**
New Norfolk, George St/Sample Tap	DVSTE58	W	Q	Q	W	M	Q	n/a
Corumbene Nursing Home	DVSTE80	W	n/a	n/a	n/a	n/a	n/a	n/a
New Norfolk High School	DVSTE81	W	n/a	n/a	n/a	n/a	n/a	n/a

New Norfolk Fire Station	DVSTE82	W	n/a	n/a	n/a	n/a	n/a	n/a
Magra Fire Station	DVSTE83	W	n/a	n/a	n/a	n/a	n/a	n/a
Fairview Primary School	DVSTE84	W	n/a	n/a	n/a	n/a	n/a	n/a
crn Goldsmith & Bastian St Lawitta	DVSTE85	W	n/a	n/a	n/a	n/a	n/a	n/a
385 Lachlan Rd	DVSTE86	W	n/a	n/a	n/a	n/a	n/a	n/a
1267 Lyell Hwy Sorell Creek	DVSTE87	W	n/a	n/a	n/a	n/a	n/a	n/a
Molesworth Rd Cemetery	DVSTE88	W	n/a	n/a	n/a	n/a	n/a	n/a
Number Planned Samples		**508**	**4**	**4**	**52**	**12**	**4**	**0**
Number Samples Tested		**508**	**4**	**4**	**52**	**12**	**4**	**0**

Table 6.30.2-h Compliance sampling program – Sorell

Planned compliance sampling program (2016-17)								
Site name	**Site Code**	**Micros**	**Metals**	**DBP**	**Fluoride (Field)**	**Fluoride (Lab)**	**Chemical Profile**	**Process Chemicals**
Sorell/10 Sommerville St	SCITE05	W	Q	Q	W	M	Q	n/a
Sorell/William Street	SCITE06	W	n/a	n/a	n/a	n/a	n/a	n/a
Midway Point/24 Penna Road	SCITE07	W	n/a	n/a	n/a	n/a	n/a	n/a
Midway Point/24 Honolulu St	SCITE08	W	n/a	n/a	n/a	n/a	n/a	n/a
Number Planned Samples		**208**	**4**	**4**	**52**	**12**	**4**	**0**
Number Samples Tested		**208**	**4**	**4**	**52**	**12**	**4**	**0**

Table 6.30.2-i Compliance sampling program – Southern Midlands

Planned compliance sampling program (2016-17)								
Site name	**Site Code**	**Micros**	**Metals**	**DBP**	**Fluoride (Field)**	**Fluoride (Lab)**	**Chemical Profile**	**Process Chemicals**
Bagdad, Caltex Fuel stop shop/Sample Post	BDSTE76	W	Q	Q	W	M	Q	n/a
Kempton, Caravan Parking Bay/Sample Post on Street	KESTE78	W	n/a	n/a	n/a	n/a	n/a	n/a
Mangalore/Park Sample Post	SMSTE75	W	n/a	n/a	n/a	n/a	n/a	n/a
Dysart/Crn Ely & Church Lane	SMSTE77	W	n/a	n/a	n/a	n/a	n/a	n/a
Number Planned Samples		**208**	**4**	**4**	**52**	**12**	**4**	**0**
Number Samples Tested		**208**	**4**	**4**	**52**	**12**	**4**	**0**

6.30.3. Summary of current and historic performance (2012-17)

Current health performance statistics are provided for each supply zone in the Greater Hobart drinking water system.

Historical health performance statistics are provided for Greater Hobart system, historical health performance statistics are not available for each supply zone.

Table 6.30.3-a Brighton health performance overview (2016-17)

Performance overview against health targets (2016-17)					
Indicator	**Outcome**	**Compliant**	**Target**	**Sampling Events**	**Non-conformances**
Microbiological	100.0%	☑	98.0%	506	0
Fluoride	100.0%	☑	100.0%	52	0
Metals	100.0%	☑	100.0%	4	0
DBPs	100.0%	☑	100.0%	4	0

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

Table 6.30.3-b Clarence health performance overview (2016-17)

Performance overview against health targets (2016-17)					
Indicator	**Outcome**	**Compliant**	**Target**	**Sampling Events**	**Non-conformances**
Microbiological	99.9%	☑	98.0%	1166	1
Fluoride	100.0%	☑	100.0%	52	0
Metals	100.0%	☑	100.0%	8	0
DBPs	100.0%	☑	100.0%	8	0

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

Table 6.30.3-c Coal Valley health performance overview (2016-17)

Performance overview against health targets (2016-17)					
Indicator	**Outcome**	**Compliant**	**Target**	**Sampling Events**	**Non-conformances**
Microbiological	100.0%	☑	98.0%	156	0
Fluoride	100.0%	☑	100.0%	52	0
Metals	100.0%	☑	100.0%	8	0
DBPs	100.0%	☑	100.0%	7	0

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

Table 6.30.3-d Glenorchy health performance overview (2016-17)

Performance overview against health targets (2016-17)					
Indicator	**Outcome**	**Compliant**	**Target**	**Sampling Events**	**Non-conformances**
Microbiological	99.8%	☑	98.0%	1030	2
Fluoride	100.0%	☑	100.0%	52	0
Metals	100.0%	☑	100.0%	8	0
DBPs	100.0%	☑	100.0%	8	0

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

Table 6.30.3-e Hobart health performance overview (2016-17)

Performance overview against health targets (2016-17)					
Indicator	**Outcome**	**Compliant**	**Target**	**Sampling Events**	**Non-conformances**
Microbiological	100.0%	☑	98.0%	828	0
Fluoride	100.0%	☑	100.0%	52	0
Metals	100.0%	☑	100.0%	4	0
DBPs	100.0%	☑	100.0%	4	0

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

Table 6.30.3-f Kingborough health performance overview (2016-17)

Performance overview against health targets (2016-17)					
Indicator	**Outcome**	**Compliant**	**Target**	**Sampling Events**	**Non-conformances**
Microbiological	99.9%	☑	98.0%	770	1
Fluoride	100.0%	☑	100.0%	52	0
Metals	100.0%	☑	100.0%	8	0
DBPs	100.0%	☑	100.0%	8	0

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

Table 6.30.3-g National Park health performance overview (2016-17)

Performance overview against health targets (2016-17)					
Indicator	**Outcome**	**Compliant**	**Target**	**Sampling Events**	**Non-conformances**
Microbiological	100.0%	☑	98.0%	104	0
Fluoride	100.0%	☑	100.0%	52	0
Metals	100.0%	☑	100.0%	4	0
DBPs	100.0%	☑	100.0%	4	0

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

Table 6.30.3-h New Norfolk health performance overview (2016-17)

Performance overview against health targets (2016-17)					
Indicator	**Outcome**	**Compliant**	**Target**	**Sampling Events**	**Non-conformances**
Microbiological	100.0%	☑	98.0%	508	0
Fluoride	100.0%	☑	100.0%	52	0
Metals	99.8%	☒	100.0%	4	1
DBPs	100.0%	☑	100.0%	4	0

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

Table 6.30.3-i Sorell health performance overview (2016-17)

Performance overview against health targets (2016-17)					
Indicator	**Outcome**	**Compliant**	**Target**	**Sampling Events**	**Non-conformances**
Microbiological	100.0%	☑	98.0%	208	0
Fluoride	100.0%	☑	100.0%	52	0
Metals	100.0%	☑	100.0%	4	0
DBPs	100.0%	☑	100.0%	4	0

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

Table 6.30.3-j Southern Midlands health performance overview (2016-17)

Performance overview against health targets (2016-17)					
Indicator	**Outcome**	**Compliant**	**Target**	**Sampling Events**	**Non-conformances**
Microbiological	99.5%	☑	98.0%	208	1
Fluoride	100.0%	☑	100.0%	52	0
Metals	100.0%	☑	100.0%	4	0
DBPs	100.0%	☑	100.0%	4	0

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

Table 6.30.3-k Greater Hobart historical health performance overview (5 year comparison)

Historical health performance overview (5 year comparison)					
Indicator	**2012-13**	**2013-14**	**2014-15**	**2015-16**	**2016-17**
Microbiological	100.0%	99.5%	>99.9%	100.0%	99.9%
Fluoride	n/a	n/a	100.0%	100.0%	100.0%
Metals	100.0%	100.0%	100.0%	100.0%	99.9%
Disinfection by products	100.0%	100.0%	100.0%	100.0%	100.0%

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

Table 6.30.3-l Greater Hobart distribution fluoride testing overview (5 year comparison)

Distribution fluoride testing overview (5 year comparison)					
Indicator	**2012-13**	**2013-14**	**2014-15**	**2015-16**	**2016-17**
Exceeding 1.5 mg/L	0	0	0	0	0
Within target range (%)	n/a	n/a	82.1%	92.2%	90.2%
Mean dose (mg/L)	n/a	n/a	0.89	0.96	0.93
on or below target within 10% of target greater than 10% outside target					
Refer to Section 5.2 for reporting methodology					

6.72.4. Analysis of current health performance (2016-17)

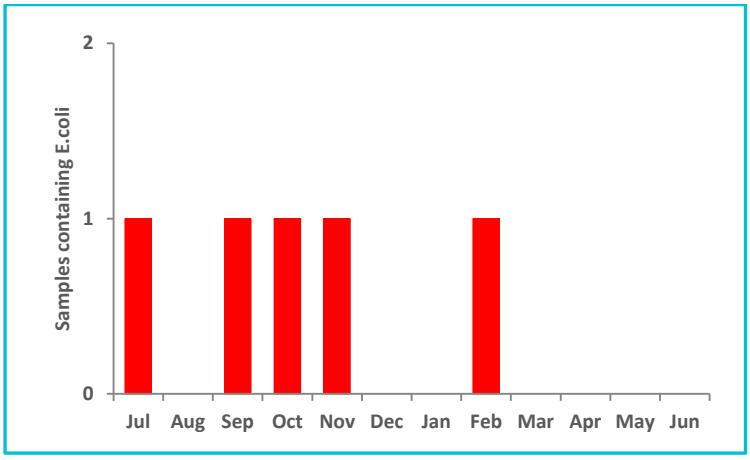


Figure 6.72.4-a Microbiological non-compliances by month (2016-17)

- *E. coli* exceedance occurred 10/10/2016 at CLSTE132 Tranmere/10 Norla St in the Clarence zone. A site investigation was conducted to determine the cause of the contamination and the surrounding pipelines were flushed, nearby reservoirs disinfected then a re-sample sent for analysis, which was clear. Investigation of the cause of the failure was inconclusive, however it was determined that the sample tap location was not representative of the network, therefore a new sample tap was installed in a more appropriate location.

- *E. coli* exceedance occurred on 12/09/2016 at GOSTE130 Austins Ferry/Primary School New Sample Tap in the Glenorchy zone. The affected reticulation line was flushed and chlorine levels were checked. The chlorine residuals were also checked at 3 others sites in the Glenorchy zone. A re-sample was sent for analysis, with re-sample clear. Investigation of the cause of the failure was inconclusive.

- *E. coli* exceedance occurred 14/11/2016 at GOSTE290 Montrose/1 Beneve Crt, Sample Tap in the Glenorchy zone. Bird ingress into the reservoir was identified and the reservoir was cleaned and

chlorinated. The reticulation zone was flushed and re-samples were conducted, with re-samples clear of *E. coli.* The reservoir roof was repaired and subsequently replaced in January 2017.

- *E. coli* exceedance occurred 9/02/2016 at KBSTE234 Taroona/Soccer Field Sample Tap in the Kingborough zone. A review of chlorine residual data was performed and re-sampling was performed at multiple locations in the surrounding area, all re-samples were clear. Investigation of the cause of the failure was inconclusive.

- *E. coli* exceedance occurred on 19/07/2016 at SMSTE75 Mangalore/Park Sample Post in the Southern Midlands zone. Chlorine dosing system checked and residual chlorine levels checked, scouring of the network and resamples sent for analysis, with re-sample clear. Investigation of the cause of the failure was inconclusive.

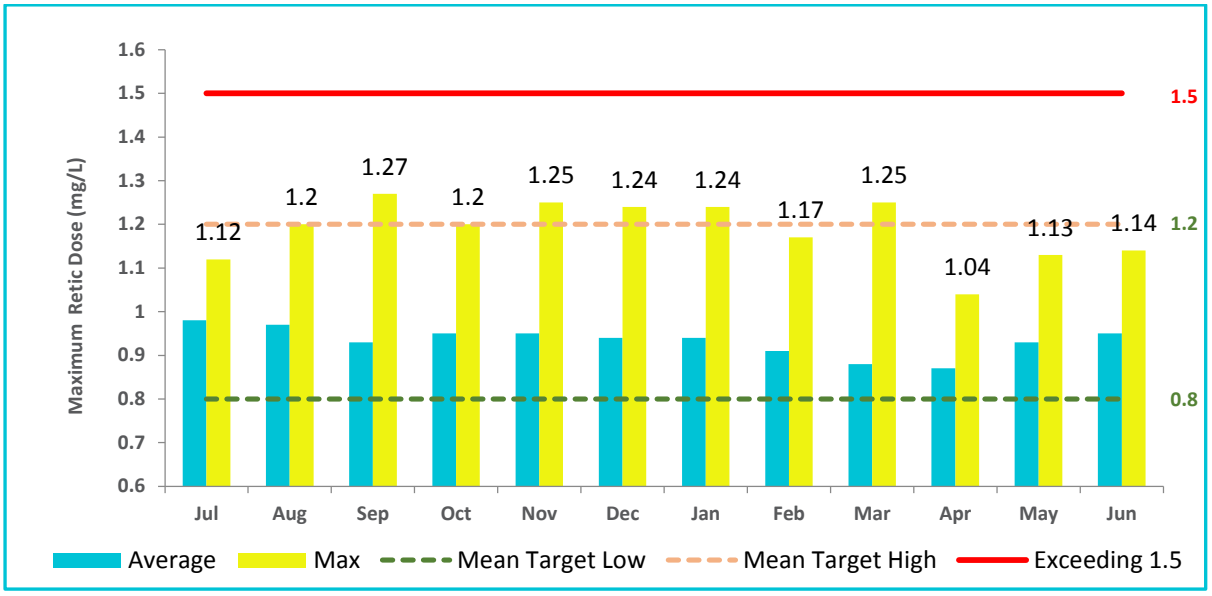


Figure 6.72.4-b Average reticulation fluoride dose by month (2016-17)

Table 6.72.4-a Metals performance 2016-17

Metals – health regulated parameters (2016–17)								
Parameter	Limit	Unit	Samples	Exceedances	Performance %	Mean	Min.	Max.
Antimony	0.003	mg/L	56	0	100	0.0005	<0.0005	0.0006
Arsenic	0.01	mg/L	56	0	100	0.0005	<0.0003	<0.001
Barium	2	mg/L	56	0	100	0.0059	0.001	0.011
Cadmium	0.002	mg/L	56	0	100	<0.0001	<0.0001	0.0001
Chromium	0.05	mg/L	56	0	100	0.0004	<0.0001	<0.001
Copper	2	mg/L	56	0	100	0.03	<0.0001	0.408
Lead	0.01	mg/L	56	0	100	0.0004	<0.0001	0.0021
Manganese	0.5	mg/L	56	0	100	0.0022	0.0005	0.0131
Mercury	0.001	mg/L	56	1	98.2	0.00016	<0.00003	0.00482
Molybdenum	0.05	mg/L	56	0	100	0.0002	<0.0001	0.0006
Nickel	0.02	mg/L	56	0	100	0.0002	<0.0001	0.0024
Selenium	0.01	mg/L	56	0	100	0.0006	<0.0001	<0.002

- Metal exceedance occurred on 4/05/2017 at New Norfolk/George St. An investigation of the catchment, treatment chemicals, network, sampling process and laboratory testing revealed no obvious source of the contamination. System was flushed and resampled with all results within ADWG limits.

Table 6.72.4-b Disinfection by product performance 2016-17

Disinfection by products – health regulated parameters (2016–17)								
Parameter	Limit	Unit	Samples	Exceedances	Performance %	Mean	Min.	Max.
Dichloroacetic acid	100	µg/L	55	0	100	5.18	<1	25
Monochloroacetic acid	150	µg/L	55	0	100	<5.00	<3	<5
Trichloroacetic acid	100	µg/L	55	0	100	14.25	<1	32
Total trihalomethanes	250	µg/L	55	0	100	39.75	16	100

6.72.5. Analysis of overall system performance (2016-17)

Table 6.72.5-a Brighton general physical performance (2016-17)

General physical parameters (2016-17)					
Parameter	**Unit**	**Guideline Value**	**Mean**	**Min**	**Max**
Chlorine residual	mg/L	0.1 - <0.8	0.39	0.00	3.00
Colour True	HU	15	1.00	<1	2.00
pH	Units	6.5 – 8.5	7.34	6.39	9.42
Turbidity	NTU	1	0.42	0.09	8.00

Table 6.72.5-b Clarence general physical performance (2016-17)

General physical parameters (2016-17)					
Parameter	**Unit**	**Guideline Value**	**Mean**	**Min**	**Max**
Chlorine residual	mg/L	0.1 - <0.8	0.32	0.01	2.20
Colour True	HU	15	<1	<1	1.00
pH	Units	6.5 – 8.5	7.26	5.95	9.33
Turbidity	NTU	1	0.43	0.1	2.3

Table 6.72.5-c Coal Valley general physical performance (2016-17)

General physical parameters (2016-17)					
Parameter	**Unit**	**Guideline Value**	**Mean**	**Min**	**Max**
Chlorine residual	mg/L	0.1 - <0.8	0.31	0.01	0.88
Colour True	HU	15	<1	<1	<1
pH	Units	6.5 – 8.5	7.67	6.22	9.64
Turbidity	NTU	1	0.40	0.11	4.35

Table 6.72.5-d Glenorchy general physical performance (2016-17)

General physical parameters (2016-17)					
Parameter	**Unit**	**Guideline Value**	**Mean**	**Min**	**Max**
Chlorine residual	mg/L	0.1 - <0.8	0.27	0.01	1.01
Colour True	HU	15	2.17	<1	7.00
pH	Units	6.5 – 8.5	7.20	6.20	8.54
Turbidity	NTU	1	0.55	0.16	2.44

Table 6.72.5-e Hobart general physical performance (2016-17)

General physical parameters (2016-17)					
Parameter	**Unit**	**Guideline Value**	**Mean**	**Min**	**Max**
Chlorine residual	mg/L	0.1 - <0.8	0.14	0.00	0.93
Colour True	HU	15	3.67	3.00	5.00
pH	Units	6.5 – 8.5	6.61	5.26	8.96
Turbidity	NTU	1	0.63	0.1	2.3

Table 6.72.5-f Kingborough general physical performance (2016-17)

General physical parameters (2016-17)					
Parameter	**Unit**	**Guideline Value**	**Mean**	**Min**	**Max**
Chlorine residual	mg/L	0.1 - <0.8	0.33	0.01	1.08
Colour True	HU	15	2.75	<1	6.00
pH	Units	6.5 – 8.5	6.77	5.08	9.11
Turbidity	NTU	1	0.63	0.26	2.99

Table 6.72.5-g National Park general physical performance (2016-17)

General physical parameters (2016-17)					
Parameter	**Unit**	**Guideline Value**	**Mean**	**Min**	**Max**
Chlorine residual	mg/L	0.1 - <0.8	0.23	0.00	0.68
Colour True	HU	15	5.67	4.00	8.00
pH	Units	6.5 – 8.5	6.96	6.11	7.88
Turbidity	NTU	1	0.67	0.25	2.17

Table 6.72.5-h New Norfolk general physical performance (2016-17)

General physical parameters (2016-17)					
Parameter	**Unit**	**Guideline Value**	**Mean**	**Min**	**Max**
Chlorine residual	mg/L	0.1 - <0.8	0.32	0.00	1.08
Colour True	HU	15	3.17	<1	8.00
pH	Units	6.5 – 8.5	7.10	6.11	8.23
Turbidity	NTU	1	0.49	0.16	5.67

Table 6.72.5-i Sorell general physical performance (2016-17)

General physical parameters (2016-17)					
Parameter	**Unit**	**Guideline Value**	**Mean**	**Min**	**Max**
Chlorine residual	mg/L	0.1 - <0.8	0.18	0.01	0.93
Colour True	HU	15	<1	<1	1.00
pH	Units	6.5 – 8.5	7.77	7.11	8.94
Turbidity	NTU	1	0.37	0.20	1.11

Table 6.72.5-j Southern Midlands general physical performance (2016-17)

General physical parameters (2016-17)					
Parameter	**Unit**	**Guideline Value**	**Mean**	**Min**	**Max**
Chlorine residual	mg/L	0.1 - <0.8	0.39	0.02	0.97
Colour True	HU	15	<1	<1	<1
pH	Units	6.5 – 8.5	8.81	7.39	9.56
Turbidity	NTU	1	0.32	0.11	4.22

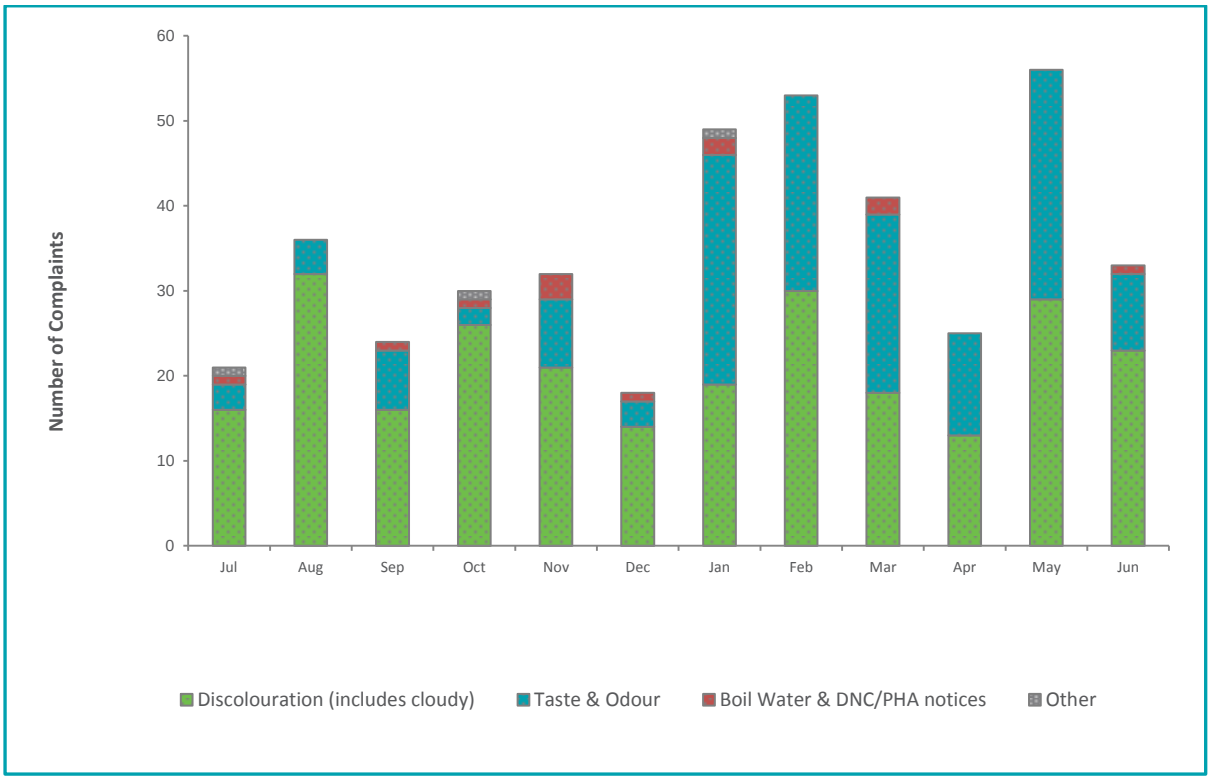


Figure 6.72.5-a Customer complaints by month and type

6.31. Gretna drinking water system

6.31.1. System summary (2016-17)

Gretna drinking water system	
System status (as at 30 June 2017)	BWA
Total number of connections	60
Fluoride	n/a

Performance overview against health targets (2016-17)

Indicator	Outcome	Compliant	Target	Sampling Events	Non-conformances
Microbiological	8.3%	☒	98.0%	12	11
Fluoride	n/a	n/a	n/a	n/a	n/a
Metals	100.0%	☑	100.0%	4	0
DBPs	n/a	n/a	n/a	n/a	n/a

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

Overall system performance (2016-17)

Indicator	Occurrences	Details
Customer complaints	0	
Public health warnings issued	0	
System incidents & issues	11	*E. coli* exceedances.
Catchment and water source issues	0	

Current and future planned infrastructure and operational changes

Project	Description	Progress	Est. Delivery	Est. Spend ($'0000)
Gretna water supply system	Treated Water supply to the communities of Gretna, Bushy Park and Glenora.	Construction	FY17/18	$2,630.51

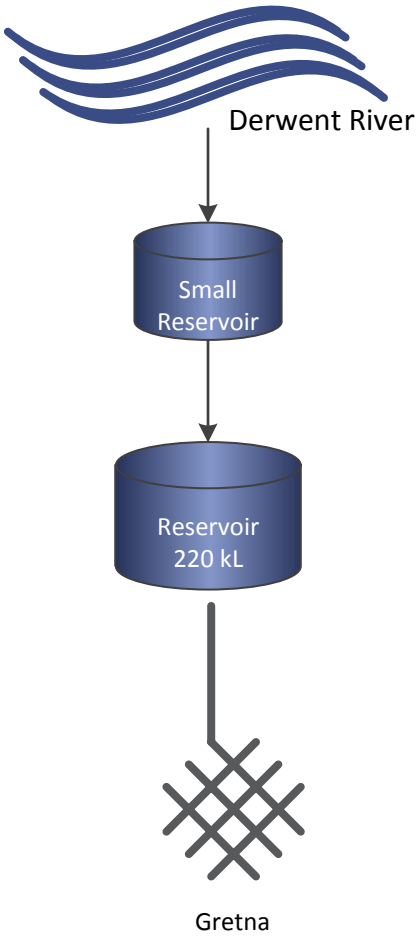


Figure 6.31.1-a Gretna system schematic

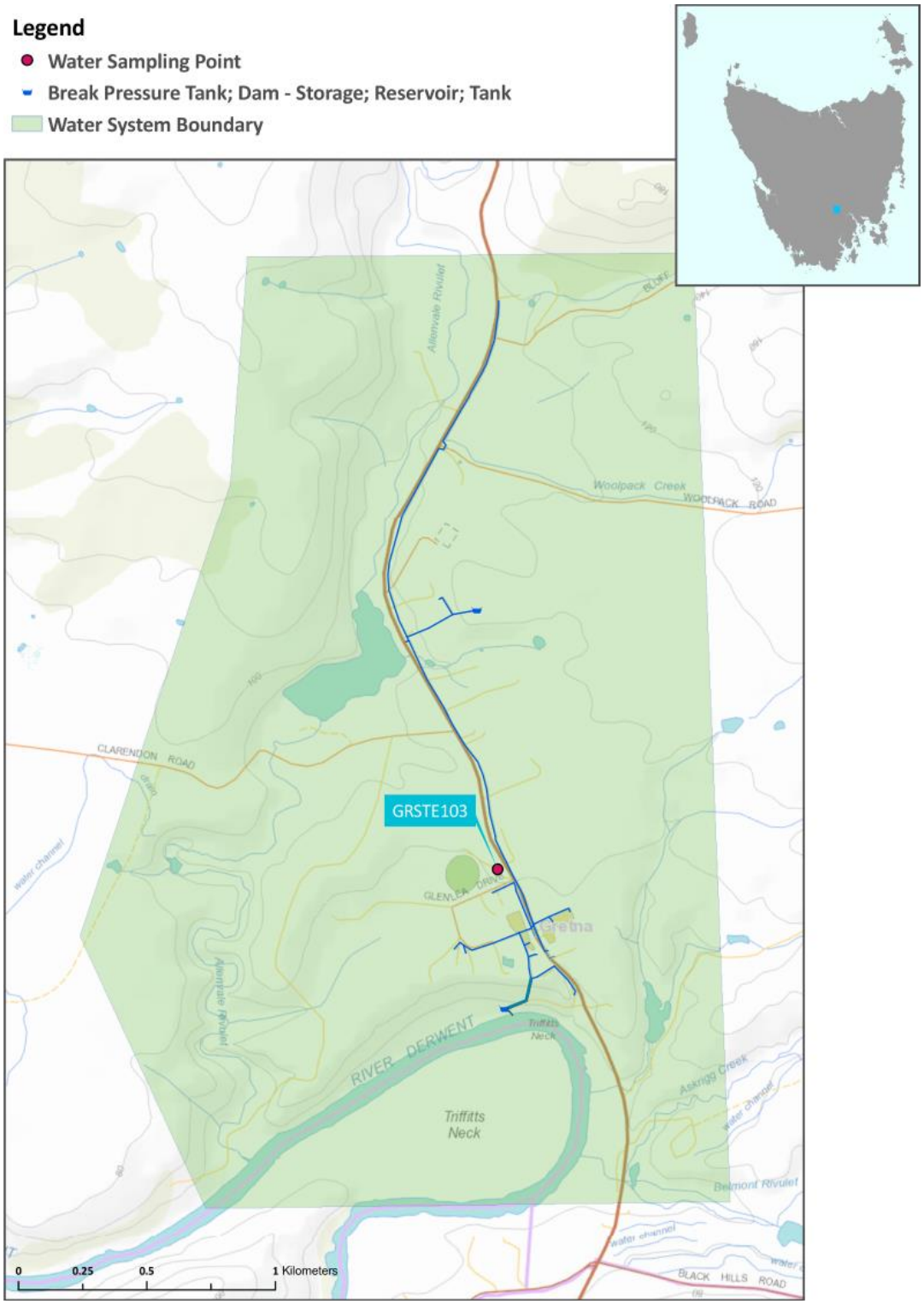


Figure 6.31.1-b Map of Gretna monitoring system

6.31.2. Summary of Annual Reticulation Compliance (2016–17)

Table 6.32.2-a Compliance sampling program

Planned compliance sampling program (2016-17)								
Site name	Site Code	Micros	Metals	DBP	Fluoride (Field)	Fluoride (Lab)	Chemical Profile	Process Chemicals
Gretna Picnic Grounds/Sample Tap	GRSTE103	M	Q	n/a	n/a	n/a	Q	n/a
Number Planned Samples		**12**	**4**	**0**	**0**	**0**	**4**	**0**
Number Samples Tested		**12**	**4**	**0**	**0**	**0**	**4**	**0**

6.31.3. Summary of current and historic performance (2012-17)

Table 6.31.3-a Historical health performance overview (5 year comparison)

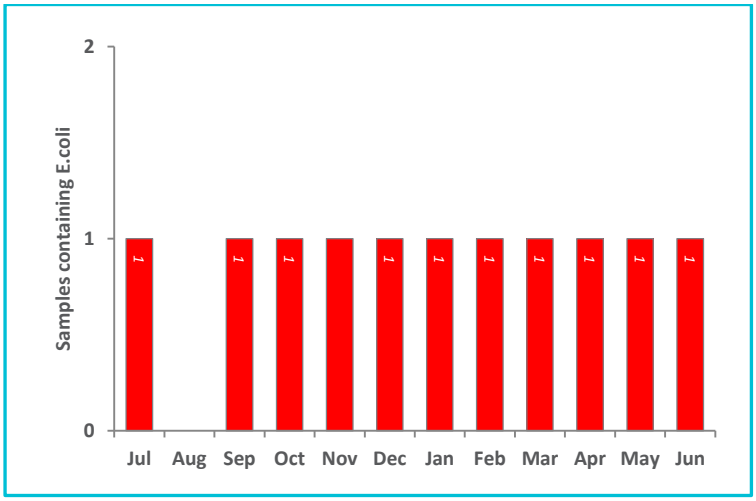
Historical health performance overview (5 year comparison)					
Indicator	2012-13	2013-14	2014-15	2015-16	2016-17
Microbiological	0.0%	0.0%	7.0%	2.1%	8.3%
Fluoride	n/a	n/a	n/a	n/a	n/a
Metals	n/a	100.0%	100.0%	100.0%	100.0%
Disinfection by products	n/a	n/a	n/a	n/a	n/a

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

6.31.4. Analysis of current health performance (2016-17)

Figure 6.31.4-a Microbiological non-compliances by month (2016-17)



- Poor microbiological performance can be attributed to a lack of barriers and the susceptibility to changes in quality from the Derwent River.
- The risk to public health is mitigated through the communication of the Permanent BWA to customers.

Table 6.31.4-a Metals performance 2016-17

Metals – health regulated parameters (2016–17)								
Parameter	Limit	Unit	Samples	Exceedances	Performance %	Mean	Min.	Max.
Antimony	0.003	mg/L	4	0	100	<0.0005	<0.0005	<0.0005
Arsenic	0.01	mg/L	4	0	100	0.0005	<0.0003	<0.001
Barium	2	mg/L	4	0	100	0.0028	0.0023	0.0031
Cadmium	0.002	mg/L	4	0	100	<0.0001	<0.0001	<0.0001
Chromium	0.05	mg/L	4	0	100	0.0004	0.0001	<0.001
Copper	2	mg/L	4	0	100	0.022	0.0136	0.039
Lead	0.01	mg/L	4	0	100	0.0011	0.0003	0.0023
Manganese	0.5	mg/L	4	0	100	0.0067	0.003	0.011
Mercury	0.001	mg/L	4	0	100	0.00004	<0.00003	<0.00005
Molybdenum	0.05	mg/L	4	0	100	0.0002	<0.0001	<0.0005

Nickel	0.02	mg/L	4	0	100	0.0003	<0.0001	0.0007
Selenium	0.01	mg/L	4	0	100	0.0006	<0.0001	<0.002

6.31.5. Analysis of overall system performance (2016-17)

Table 6.31.5-a General physical performance 2016-17

General physical parameters (2016-17)					
Parameter	**Unit**	**Guideline Value**	**Mean**	**Min**	**Max**
Chlorine residual	mg/L	0.1 - <0.8	n/a	n/a	n/a
Colour True	HU	15	20.67	9.0	41.0
pH	Units	6.5 – 8.5	7.03	6.53	7.32
Turbidity	NTU	1	2.43	0.51	8.43

6.32. Herrick drinking water system

6.32.1. Summary of system status

Herrick drinking water system	
System status (as at 30 June 2017)	BWA
Total number of connections	29
Fluoride	n/a

Performance overview against health targets (2016-17)

Indicator	Outcome	Compliant	Target	Sampling Events	Non-conformances
Microbiological	58.3%	☒	98.0%	12	5
Fluoride	n/a	n/a	n/a	n/a	n/a
Metals	100.0%	☑	100.0%	4	0
DBPs	n/a	n/a	n/a	n/a	n/a

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

Overall system performance (2016-17)

Indicator	Occurrences	Details
Customer complaints	0	
Public health warnings issued	0	
System incidents & issues	5	E. coli exceedances.
Catchment and water source issues	0	

Current and future planned infrastructure and operational changes

Project	Description	Progress	Est. Delivery	Est. Spend ($'0000
Herrick Water Supply System	Treated water supply to the community of Herrick.	Tender	FY17/18	$992.43

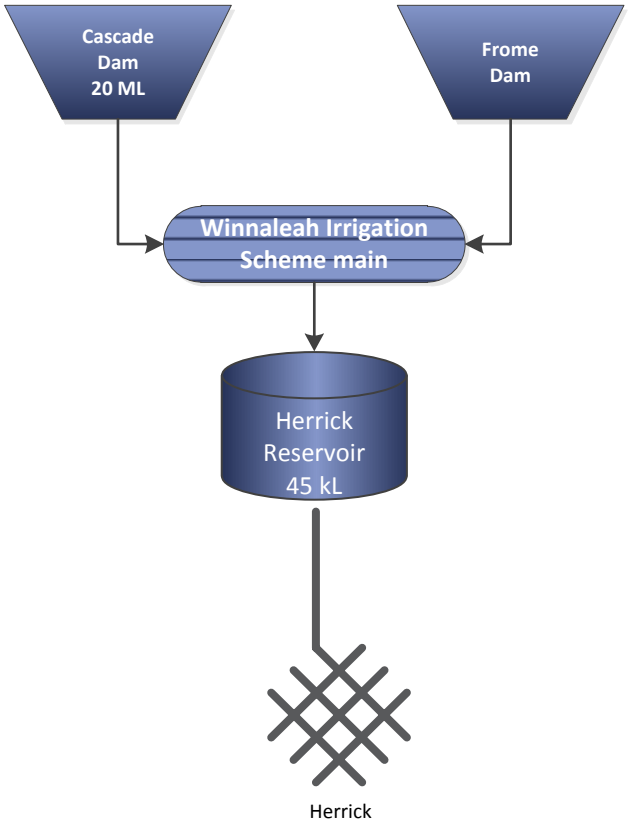


Figure 6.32.1-a Herrick system schematic

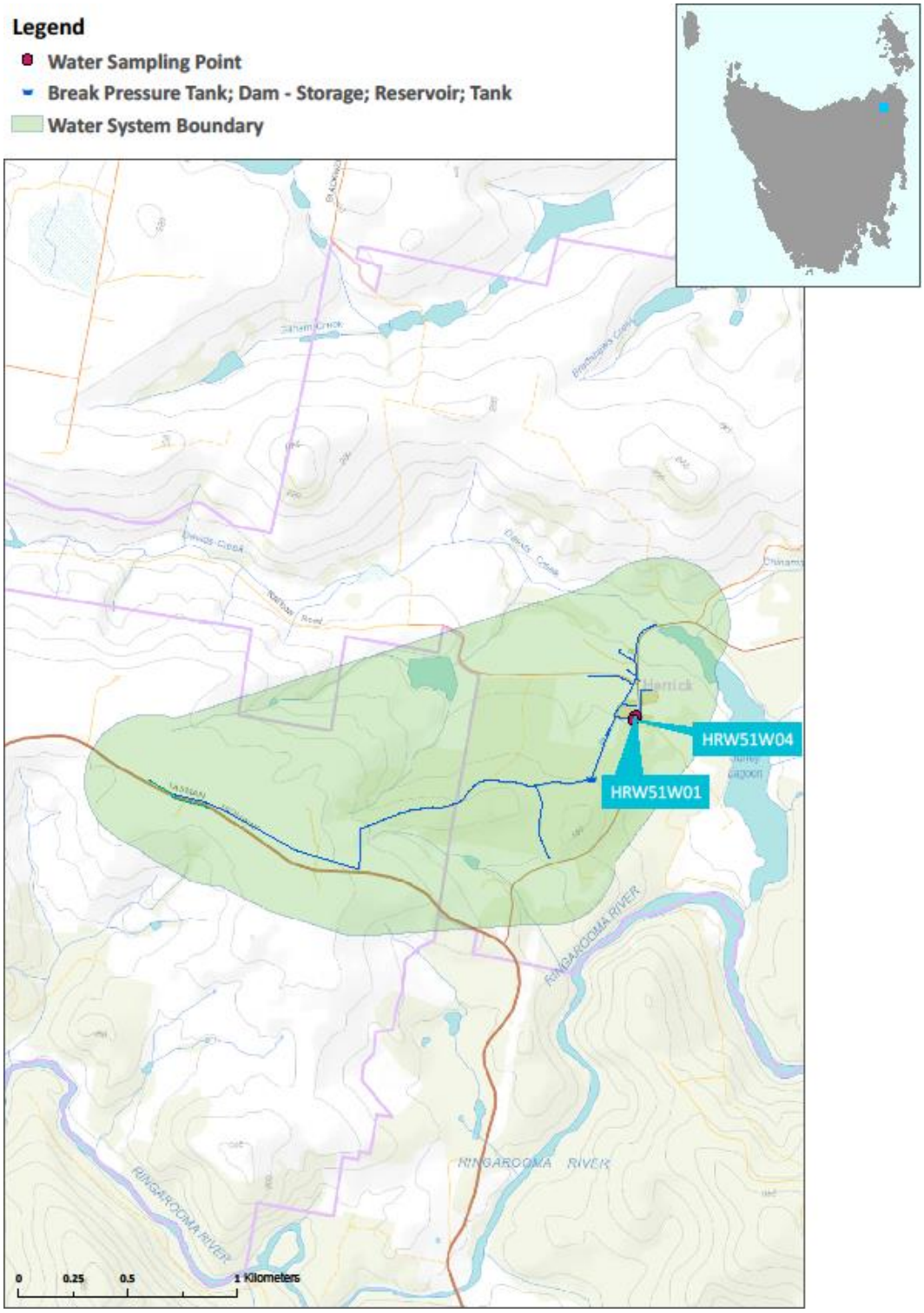


Figure 6.32.1-b Map of Herrick monitoring system

6.32.2. Summary of Annual Reticulation Compliance (2016–17)

Table 6.32.2-a Compliance sampling program

Planned compliance sampling program (2016-17)								
Site name	Site Code	Micros	Metals	DBP	Fluoride (Field)	Fluoride (Lab)	Chemical Profile	Process Chemicals
Herrick/Old Service Station	HRW51W04	M	Q	n/a	n/a	n/a	Q	n/a
Number Planned Samples		**12**	**4**	**0**	**0**	**0**	**4**	**0**
Number Samples Tested		**12**	**4**	**0**	**0**	**0**	**4**	**0**

6.32.3. Summary of current and historic performance (2012-17)

Table 6.32.3-a Historical health performance overview (5 year comparison)

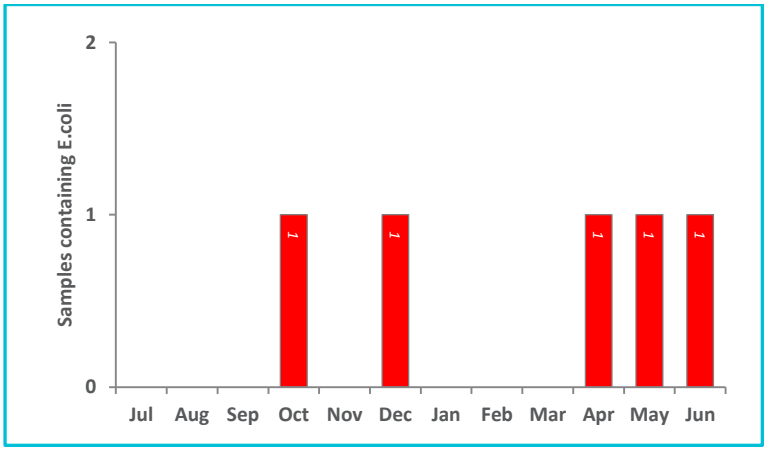
Historical health performance overview (5 year comparison)					
Indicator	**2012-13**	**2013-14**	**2014-15**	**2015-16**	**2016-17**
Microbiological	50.0%	64.0%	64.7%	66.7%	58.3%
Fluoride	n/a	n/a	n/a	n/a	n/a
Metals	n/a	100.0%	100.0%	100.0%	100.0%
Disinfection by products	n/a	n/a	n/a	n/a	n/a

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

6.32.4. Analysis of current health performance (2016-17)

Figure 6.32.4-a Microbiological non-compliances by month (2016-17)



- Poor microbiological performance can be attributed to a lack of barriers and the susceptibility to changes in quality from the Cascade Dam and Frome Dam.
- The risk to public health is mitigated through the communication of the Permanent BWA to customers.

Table 6.32.4-a Metals performance 2016-17

Metals – health regulated parameters (2016–17)								
Parameter	Limit	Unit	Samples	Exceedances	Performance %	Mean	Min.	Max.
Antimony	0.003	mg/L	4	0	100	<0.0005	<0.0005	<0.0005
Arsenic	0.01	mg/L	4	0	100	0.0006	<0.0003	<0.001
Barium	2	mg/L	4	0	100	0.0024	0.002	0.003
Cadmium	0.002	mg/L	4	0	100	0.0001	<0.0001	0.0001
Chromium	0.05	mg/L	4	0	100	0.0004	0.0002	<0.001
Copper	2	mg/L	4	0	100	0.0189	0.015	0.0267
Lead	0.01	mg/L	4	0	100	0.0028	0.004	0.0018
Manganese	0.5	mg/L	4	0	100	0.0034	0.0014	0.005
Mercury	0.001	mg/L	4	0	100	0.00005	<0.00003	0.00007
Molybdenum	0.05	mg/L	4	0	100	0.0002	<0.0001	<0.0005
Nickel	0.02	mg/L	4	0	100	0.0007	<0.0001	0.0021
Selenium	0.01	mg/L	4	0	100	0.0007	<0.0001	<0.002

6.32.5. Analysis of overall system performance (2016-17)

Table 6.33.5-a General physical performance 2016-17

General physical parameters (2016-17)					
Parameter	**Unit**	**Guideline Value**	**Mean**	**Min**	**Max**
Chlorine residual	mg/L	0.1 - <0.8	n/a	n/a	n/a
Colour True	HU	15	55.67	44	66
pH	Units	6.5 – 8.5	6.34	5.35	7.79
Turbidity	NTU	1	5.86	0.87	20.5

6.33. Huon Valley drinking water system

6.33.1. Summary of system status

Huon Valley drinking water system	
System status (as at 30 June 2017)	Potable
Total number of connections	4,273
Fluoride	Sodium fluoride

Performance overview against health targets (2016-17)

Indicator	Outcome	Compliant	Target	Sampling Events	Non-conformances
Microbiological	99.7%	☑	98.0%	416	1
Fluoride	100.0%	☑	100.0%	12	0
Metals	100.0%	☑	100.0%	8	0
DBPs	100.0%	☑	100.0%	24	0

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

Overall system performance (2016-17)

Indicator	Occurrences	Details
Customer complaints	13	Discolouration, taste & odour, boil water & DNC alerts.
Public health warnings issued	0	
System incidents & issues	1	*E. coli* exceedance.
Catchment and water source issues	0	

Current and future planned infrastructure and operational changes

Project	Description	Progress	Est. Delivery	Est. Spend
n/a	n/a	n/a	n/a	n/a

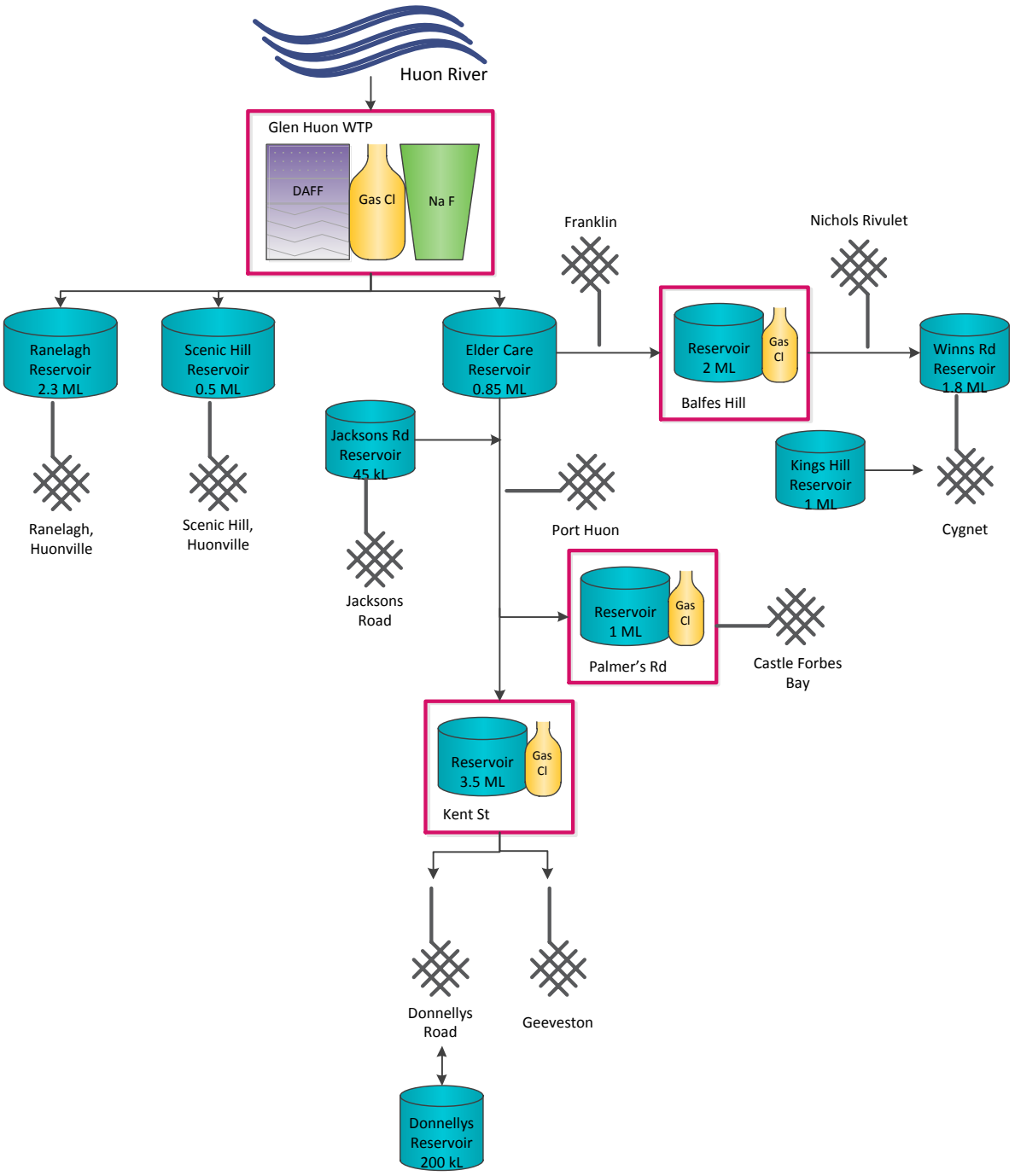


Figure 6.33.1-a Huon Valley system schematic

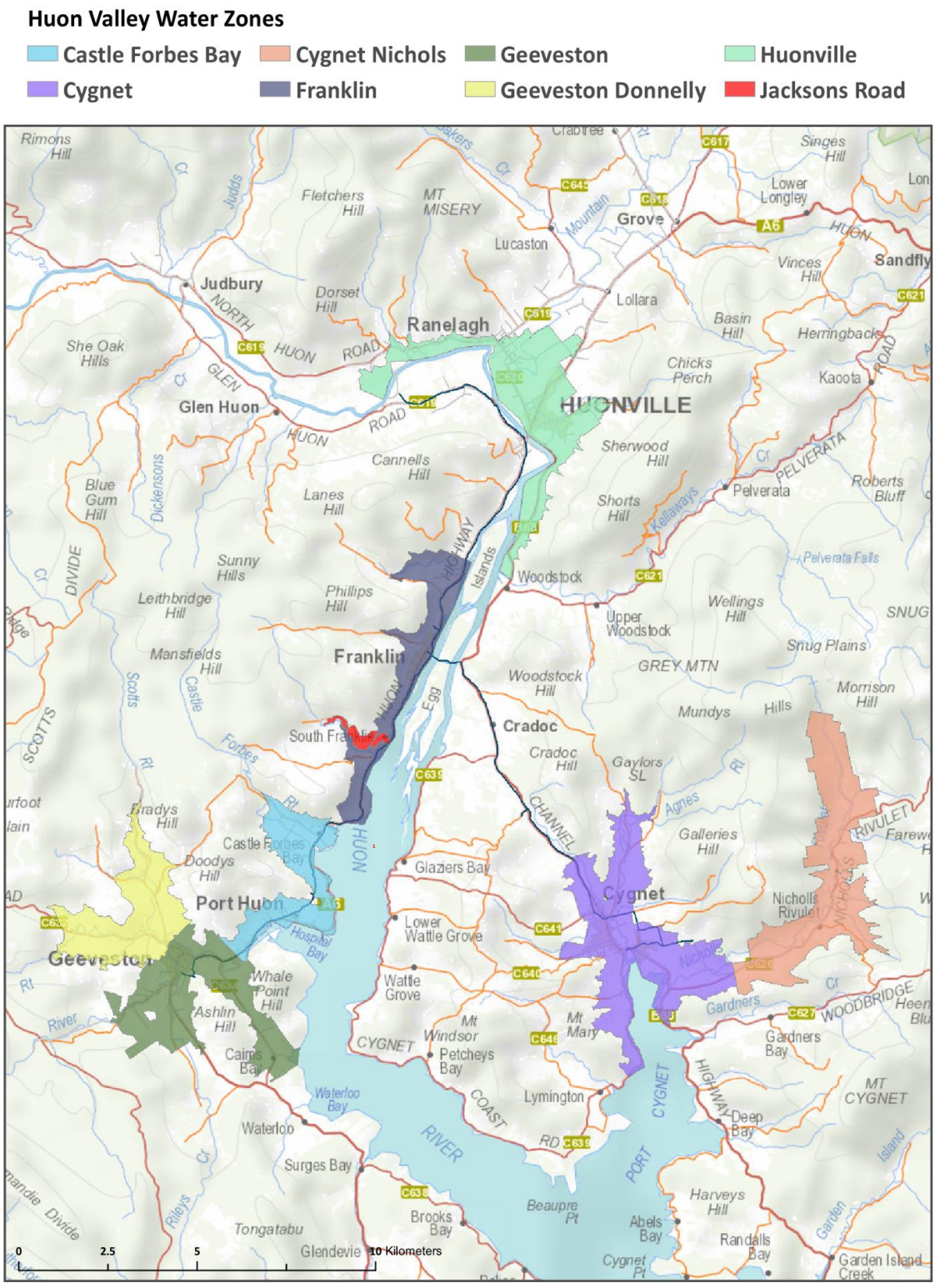


Figure 6.33.1-b Map of Huon Valley monitoring system

Figure 6.33.1-c Map of Castle Forbes monitoring system

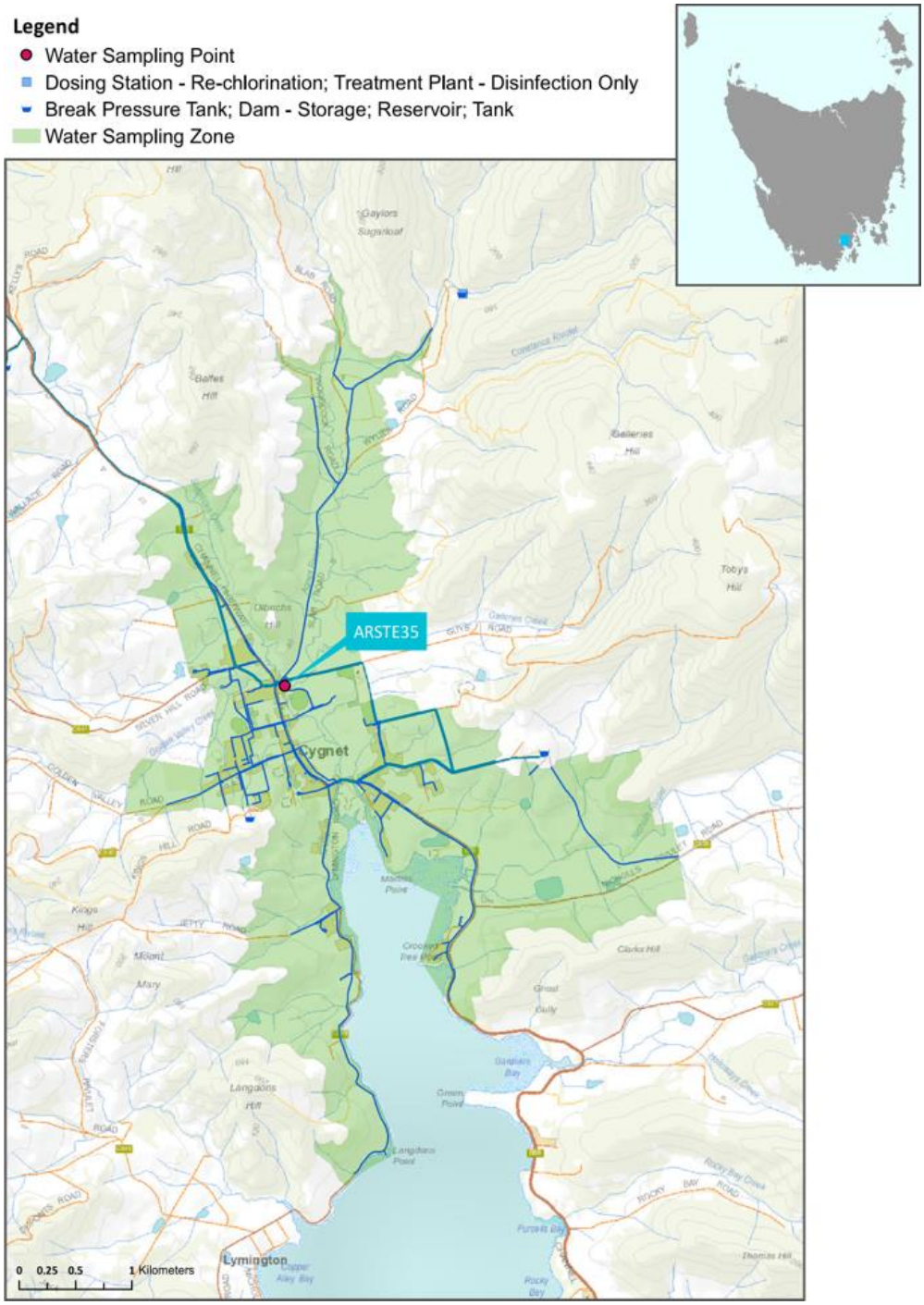


Figure 6.33.1-d Map of Cygnet monitoring system

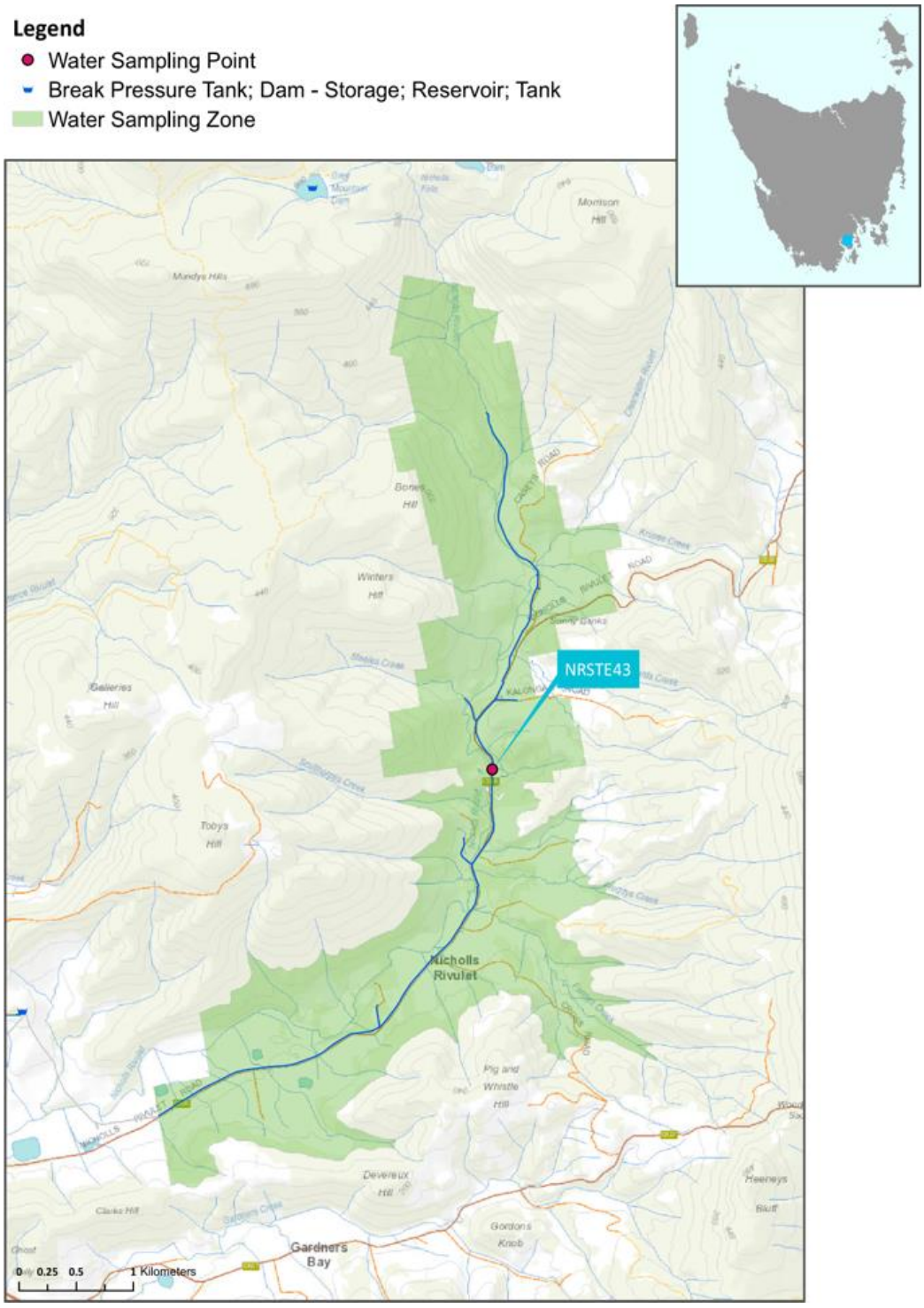


Figure 6.33.1-e Map of Cygnet Nichols monitoring system

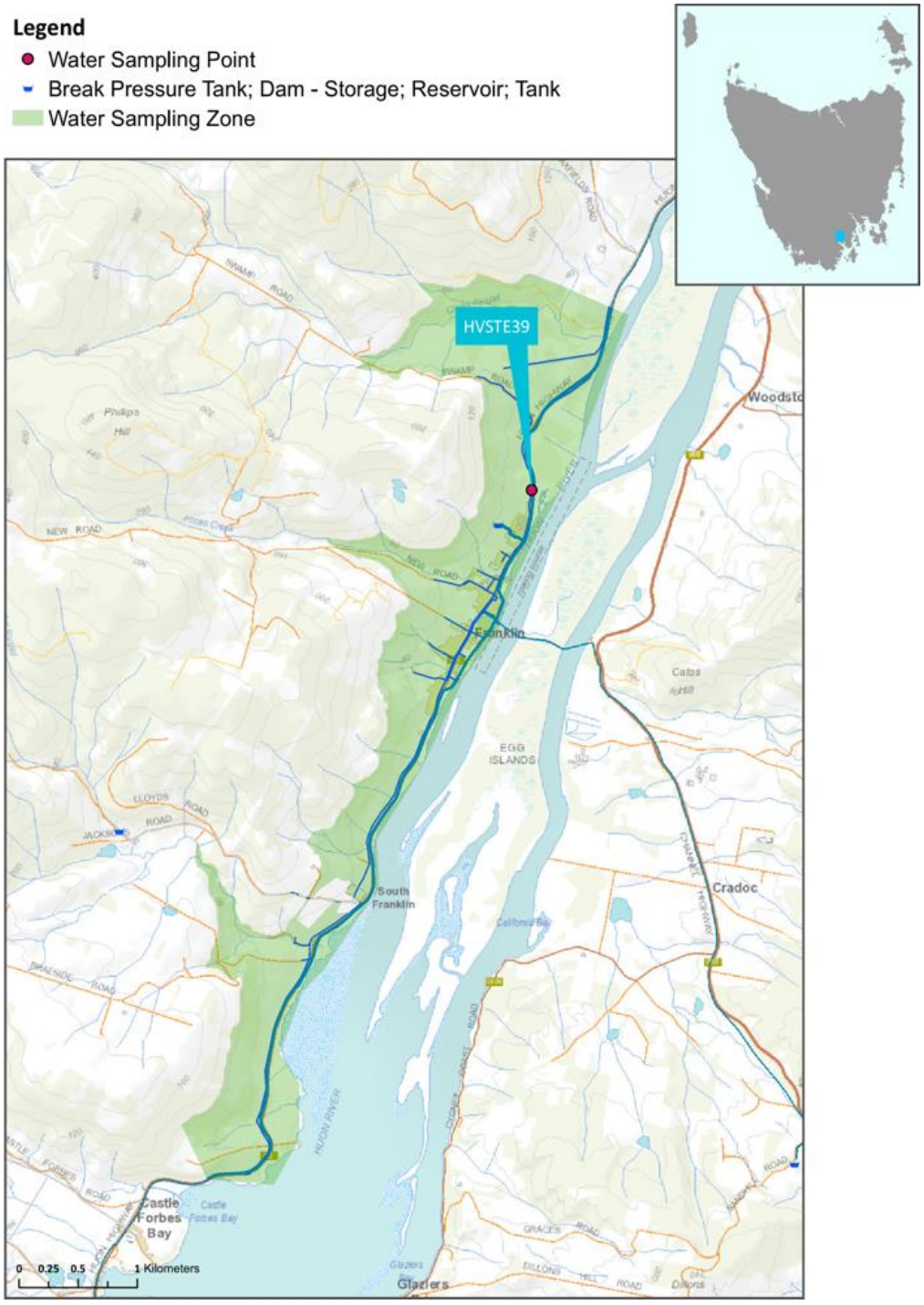


Figure 6.33.1-f Map of Franklin monitoring system

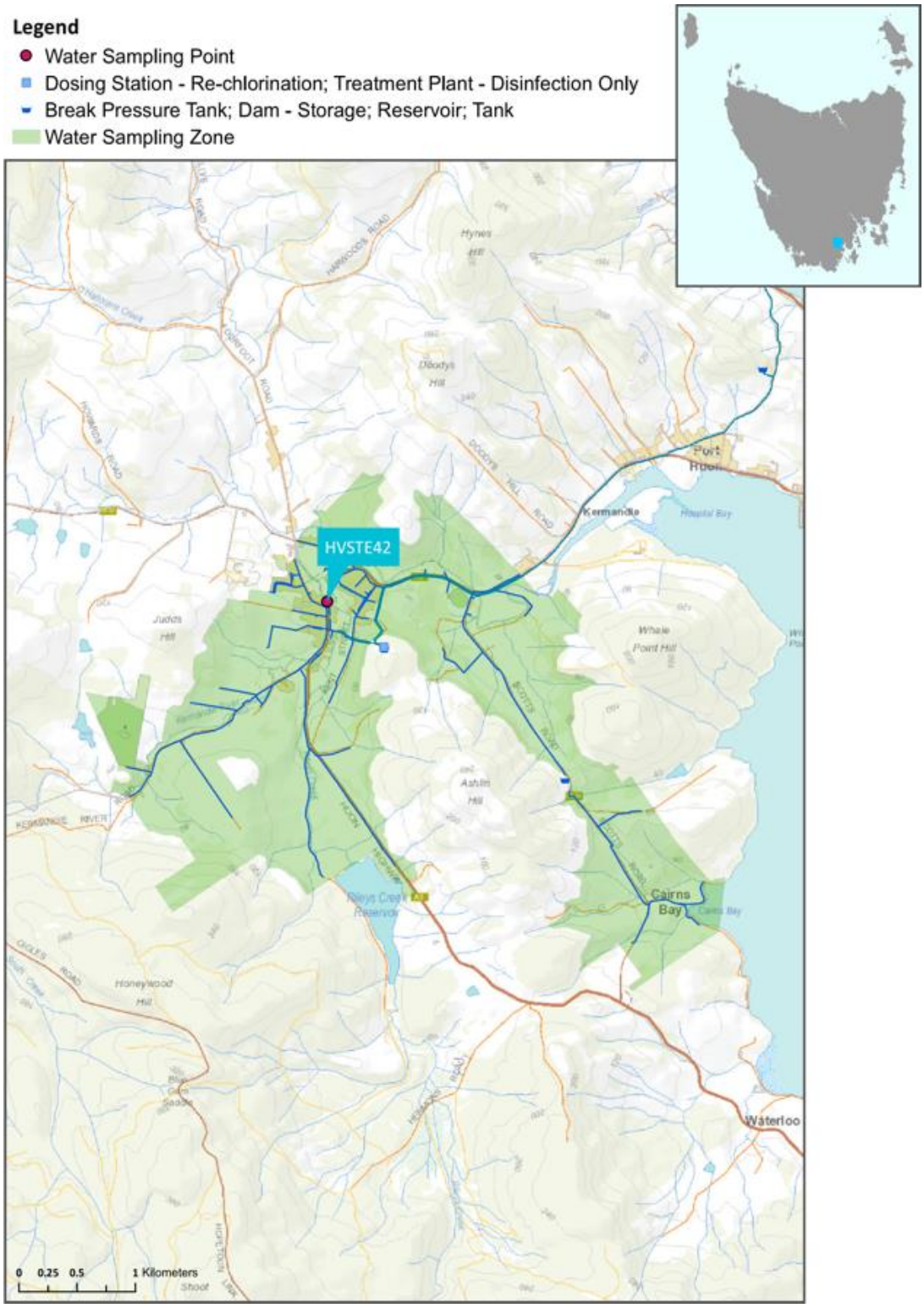


Figure 6.33.1-g Map of Geeveston monitoring system

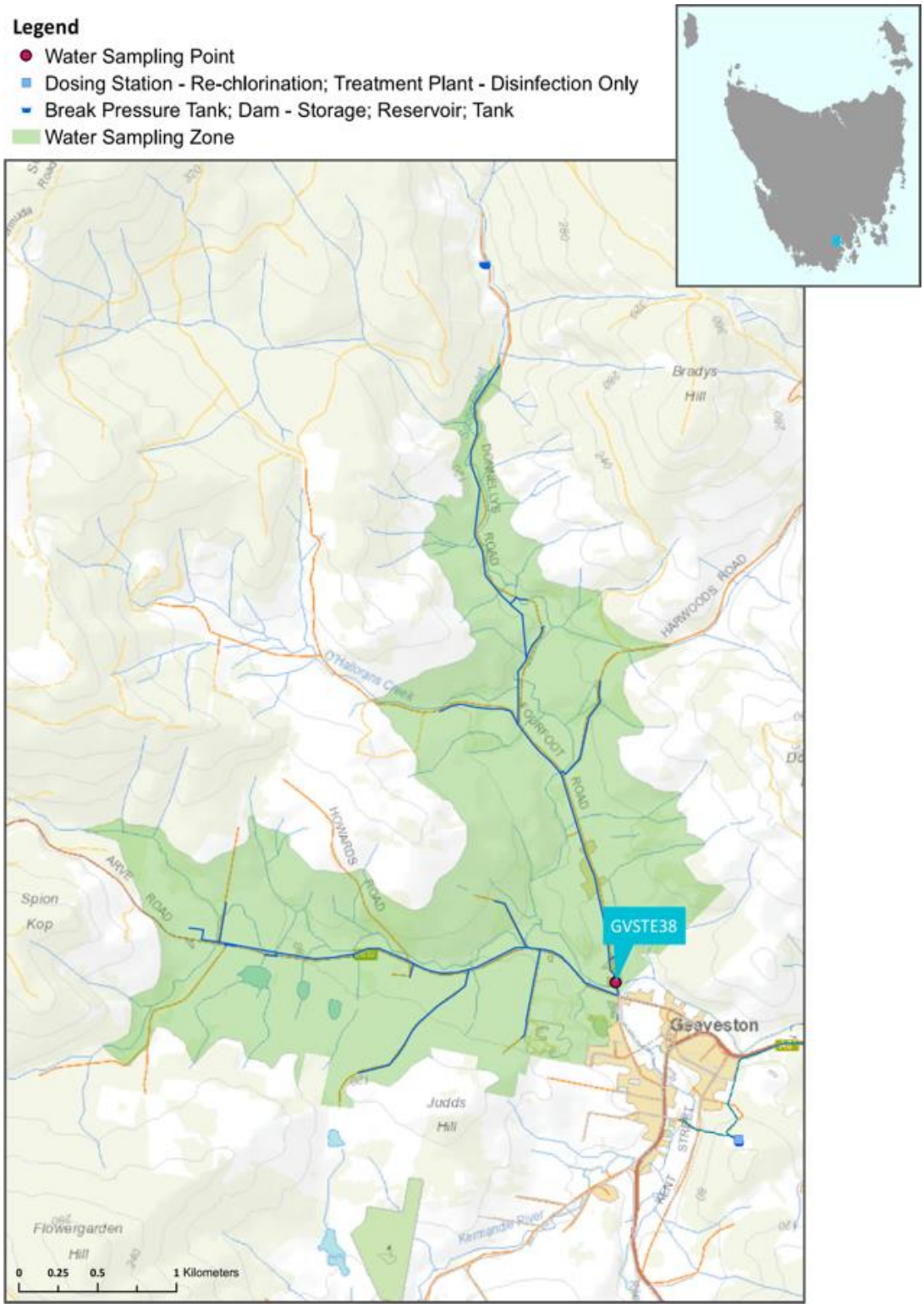


Figure 6.33.1-h Map of Geeveston Donnelly monitoring system

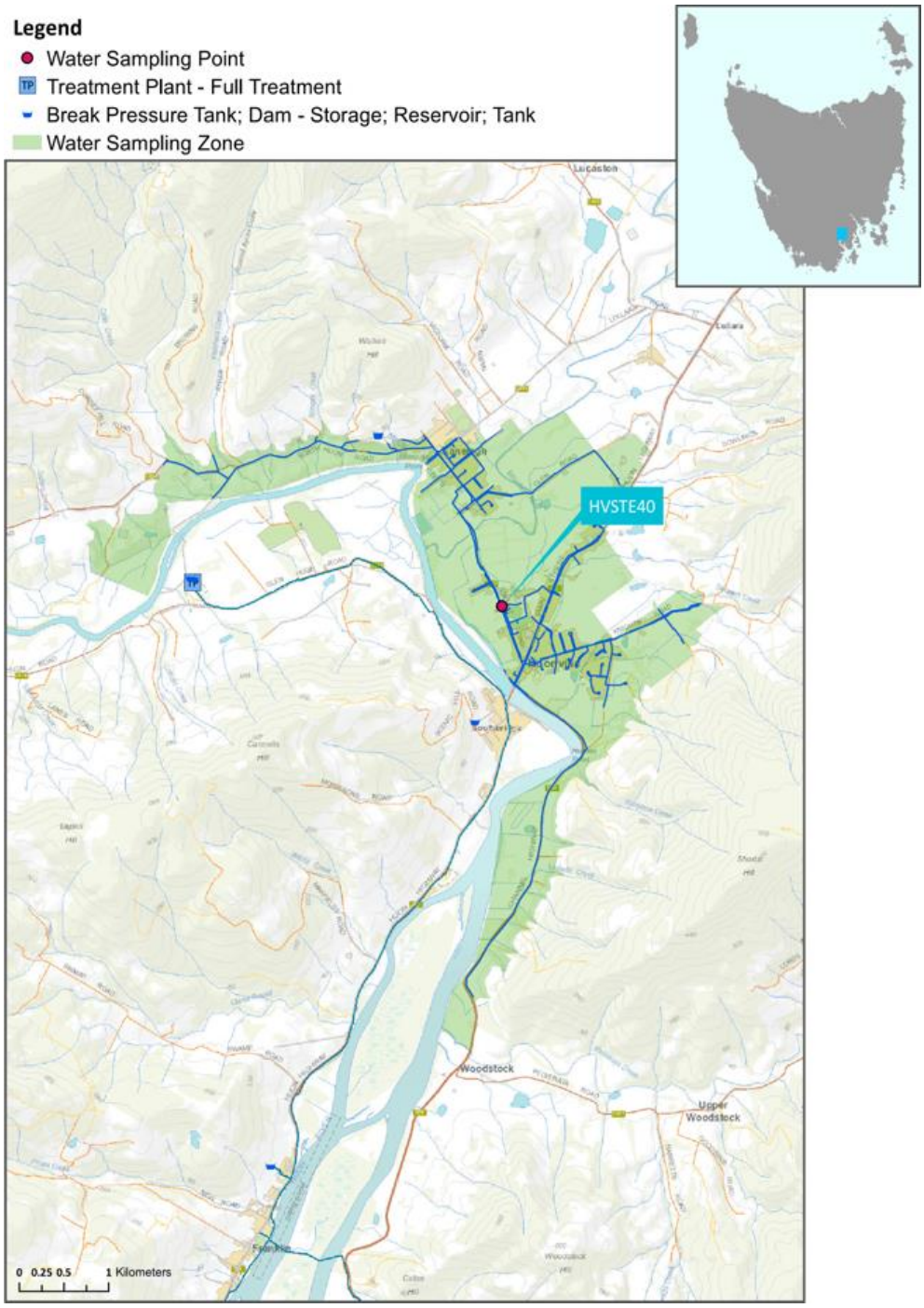


Figure 6.33.1-i Map of Huonville monitoring system

Figure 6.33.1-j Map of Jacksons Road monitoring system

6.33.2. Summary of Annual Reticulation Compliance (2016–17)

The Huon Valley monitoring system is supplied by the Huon River. The water is treated at Glen Huon WTP and stored in 8 roofed reservoirs that supply drinking water to 8 zones including Castle Forbes Bay, Cygnet, Cygnet Nichols, Franklin, Geeveston, Geeveston Donnelly, Huonville and Jacksons Road.

The Huon Valley compliance sampling program consists of 8 separate programs based on the 8 supply zones.

Table 6.33.2-a Compliance sampling program – Castle Forbes Bay

Planned compliance sampling program (2016-17)								
Site name	**Site Code**	**Micros**	**Metals**	**DBP**	**Fluoride (Field)**	**Fluoride (Lab)**	**Chemical Profile**	**Process Chemicals**
4046 Huon Hwy, Castle Forbes Bay	HVSTE60	W	n/a	n/a	n/a	n/a	n/a	n/a
Number Planned Samples		**52**	**0**	**0**	**0**	**0**	**0**	**0**
Number Samples Tested		**52**	**0**	**0**	**0**	**0**	**0**	**0**

Table 6.33.2-b Compliance sampling program – Cygnet

Planned compliance sampling program (2016-17)								
Site name	**Site Code**	**Micros**	**Metals**	**DBP**	**Fluoride (Field)**	**Fluoride (Lab)**	**Chemical Profile**	**Process Chemicals**
Cygnet/Football Ground, Bridge Sample Tap	ARSTE35	W	n/a	Q	n/a	n/a	n/a	n/a
Number Planned Samples		**52**	**0**	**4**	**0**	**0**	**0**	**0**
Number Samples Tested		**52**	**0**	**3***	**0**	**0**	**0**	**0**

**Calculated DBP on 20 samples for Di, Mono and Tri for 4 sites missing last Q*

Table 6.33.2-c Compliance sampling program – Cygnet Nichols

Planned compliance sampling program (2016-17)								
Site name	Site Code	Micros	Metals	DBP	Fluoride (Field)	Fluoride (Lab)	Chemical Profile	Process Chemicals
Nicholls Rivulet, Sample Tap	NRSTE43	W	n/a	Q	n/a	n/a	n/a	n/a
Number Planned Samples		**52**	**0**	**4**	**0**	**0**	**0**	**0**
Number Samples Tested		**52**	**0**	**3***	**0**	**0**	**0**	**0**

**Calculated DBP on 20 samples for Di, Mono and Tri for 4 sites missing last Q*

Table 6.33.2-d Compliance sampling program – Franklin

Planned compliance sampling program (2016-17)								
Site name	Site Code	Micros	Metals	DBP	Fluoride (Field)	Fluoride (Lab)	Chemical Profile	Process Chemicals
Franklin Retic/Opposite No. 1 PS, Sample Tap	HVSTE39	W	n/a	Q	n/a	n/a	n/a	n/a
Number Planned Samples		**52**	**0**	**4**	**0**	**0**	**0**	**0**
Number Samples Tested		**52**	**0**	**3***	**0**	**0**	**0**	**0**

**Calculated DBP on 20 samples for Di, Mono and Tri for 4 sites missing last Q*

Table 6.33.2-e Compliance sampling program – Geeveston

Planned compliance sampling program (2016-17)								
Site name	**Site Code**	**Micros**	**Metals**	**DBP**	**Fluoride (Field)**	**Fluoride (Lab)**	**Chemical Profile**	**Process Chemicals**
Geeveston/Intersection Bridge, School Rd, Main Rd	HVSTE42	W	Q	Q	W	n/a	Q	n/a
Number Planned Samples		**52**	**0**	**4**	**52**	**n/a**	**4**	**n/a**
Number Samples Tested		**52**	**0**	**3***	**52**	**n/a**	**4**	**n/a**

**Calculated DBP on 20 samples for Di, Mono and Tri for 4 sites missing last Q*

Table 6.33.2-f Compliance sampling program – Geeveston Donnelly

Planned compliance sampling program (2016-17)								
Site name	**Site Code**	**Micros**	**Metals**	**DBP**	**Fluoride (Field)**	**Fluoride (Lab)**	**Chemical Profile**	**Process Chemicals**
Geeveston/Fourfoot Rd 1st Bridge	GVSTE38	W	n/a	n/a	n/a	n/a	n/a	n/a
Number Planned Samples		**52**	**0**	**0**	**0**	**0**	**0**	**0**
Number Samples Tested		**52**	**0**	**0**	**0**	**0**	**0**	**0**

Table 6.33.2-g Compliance sampling program – Huonville

Planned compliance sampling program (2016-17)								
Site name	**Site Code**	**Micros**	**Metals**	**DBP**	**Fluoride (Field)**	**Fluoride (Lab)**	**Chemical Profile**	**Process Chemicals**
Huonville Retic/Football Club Entrance, Wilmot Rd, Sample Tap	HVSTE40	W	Q	Q	W	M	Q	n/a
Number Planned Samples		**52**	**4**	**4**	**52**	**12**	**4**	**0**
Number Samples Tested		**52**	**4**	**4**	**52**	**12**	**4**	**0**

Table 6.33.2-h Compliance sampling program – Jacksons Road

Planned compliance sampling program (2016-17)								
Site name	**Site Code**	**Micros**	**Metals**	**DBP**	**Fluoride (Field)**	**Fluoride (Lab)**	**Chemical Profile**	**Process Chemicals**
South Franklin, Jacksons Rd/Sample Tap	FRSTE45	W	n/a	Q	n/a	n/a	n/a	n/a
Number Planned Samples		**52**	**0**	**4**	**0**	**0**	**0**	**0**
Number Samples Tested		**52**	**0**	**3***	**0**	**0**	**0**	**0**

**Calculated DBP on 20 samples for Di, Mono and Tri for 4 sites missing last Q*

6.33.3. Summary of current and historic performance (2012-17)

Current health performance statistics are provided for each supply zone in the Huon Valley drinking water system.

Historical health performance statistics are provided for Huon Valley system, historical health performance statistics are not available for each supply zone.

Table 6.33.3-a Castle Forbes Bay health performance overview (2016-17)

Performance overview against health targets (2016-17)					
Indicator	**Outcome**	**Compliant**	**Target**	**Sampling Events**	**Non-conformances**
Microbiological	100.0%	☑	98.0%	52	0
Fluoride	n/a	n/a	n/a	n/a	n/a
Metals	n/a	n/a	n/a	n/a	n/a
DBPs	n/a	n/a	n/a	n/a	n/a

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

Table 6.33.3-b Cygnet health performance overview (2016-17)

Performance overview against health targets (2016-17)					
Indicator	**Outcome**	**Compliant**	**Target**	**Sampling Events**	**Non-conformances**
Microbiological	100.0%	☑	98.0%	52	0
Fluoride	n/a	n/a	n/a	n/a	n/a
Metals	n/a	n/a	n/a	n/a	n/a
DBPs	100.0%	☑	100.0%	3	0

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

Table 6.33.3-c Cygnet Nichols health performance overview (2016-17)

Performance overview against health targets (2016-17)					
Indicator	**Outcome**	**Compliant**	**Target**	**Sampling Events**	**Non-conformances**
Microbiological	100.0%	☑	98.0%	52	0
Fluoride	n/a	n/a	n/a	n/a	n/a
Metals	n/a	n/a	n/a	n/a	n/a
DBPs	100.0%	☑	100.0%	3	0

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

Table 6.33.3-d Franklin health performance overview (2016-17)

Performance overview against health targets (2016-17)					
Indicator	**Outcome**	**Compliant**	**Target**	**Sampling Events**	**Non-conformances**
Microbiological	100.0%	☑	98.0%	52	0
Fluoride	n/a	n/a	n/a	n/a	n/a
Metals	n/a	n/a	n/a	n/a	n/a
DBPs	100.0%	☑	100.0%	3	0

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

Table 6.33.3-e Geeveston health performance overview (2016-17)

Performance overview against health targets (2016-17)					
Indicator	**Outcome**	**Compliant**	**Target**	**Sampling Events**	**Non-conformances**
Microbiological	100.0%	☑	98.0%	52	0
Fluoride	n/a	n/a	n/a	n/a	n/a
Metals	100.0%	☑	100.0%	4	0
DBPs	100.0%	☑	100.0%	3	0

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

Table 6.33.3-f Geeveston Donnelly health performance overview (2016-17)

Performance overview against health targets (2016-17)					
Indicator	**Outcome**	**Compliant**	**Target**	**Sampling Events**	**Non-conformances**
Microbiological	100.0%	☑	98.0%	52	0
Fluoride	n/a	n/a	n/a	n/a	n/a
Metals	n/a	n/a	n/a	n/a	n/a
DBPs	n/a	n/a	n/a	n/a	n/a

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

Table 6.33.3-g Huonville health performance overview (2016-17)

Performance overview against health targets (2016-17)					
Indicator	**Outcome**	**Compliant**	**Target**	**Sampling Events**	**Non-conformances**
Microbiological	98.1%	☑	**98.0%**	52	1
Fluoride	100.0%	☑	100.0%	12	0
Metals	100.0%	☑	100.0%	4	4
DBPs	100.0%	☑	100.0%	4	4

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

Table 6.33.3-h Jackson Road health performance overview (2016-17)

Performance overview against health targets (2016-17)					
Indicator	**Outcome**	**Compliant**	**Target**	**Sampling Events**	**Non-conformances**
Microbiological	100.0%	☑	98.0%	52	0
Fluoride	n/a	n/a	n/a	n/a	n/a
Metals	n/a	n/a	n/a	n/a	n/a
DBPs	100.0%	☑	100.0%	3	0

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

Table 6.33.3-i Huon Valley historical health performance overview (5 year comparison)

Historical health performance overview (5 year comparison)					
Indicator	**2012-13**	**2013-14**	**2014-15**	**2015-16**	**2016-17**
Microbiological	100.0%	99.5%	100.0%	99.7%	99.7%
Fluoride	100.0%	100.0%	100.0%	100.0%	100.0%
Metals	100.0%	100.0%	100.0%	100.0%	100.0%
Disinfection by products	100.0%	100.0%	100.0%	100.0%	100.0%

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

Table 6.33.3-j Huon Valley distribution fluoride testing overview (5 year comparison)

Distribution fluoride testing overview (5 year comparison)					
Indicator	**2012-13**	**2013-14**	**2014-15**	**2015-16**	**2016-17**
Exceeding 1.5 mg/L	0	0	0	0	0
Within target range (%)	n/a	n/a	78.8%	89.6%	100.0%
Mean dose (mg/L)	n/a	n/a	1.06	0.97	0.98

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

6.33.4. Analysis of current health performance (2016-17)

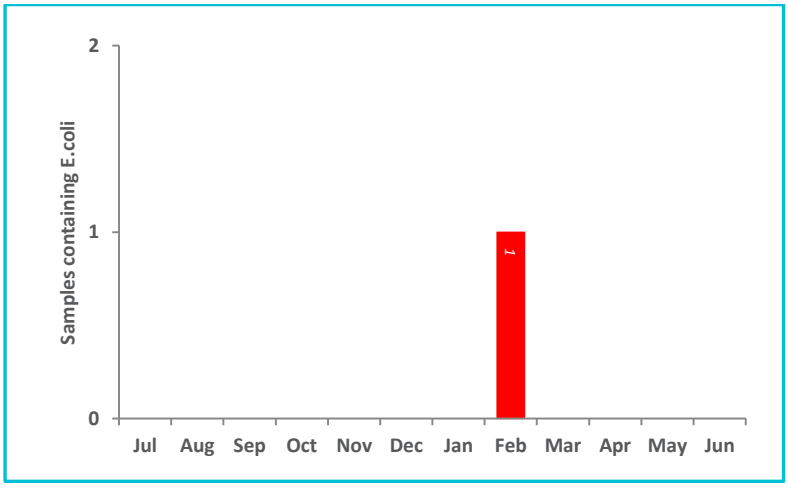


Figure 6.33.4-a Microbiological non-compliances by month (2016-17)

- *E.coli* exceedance occurred 8/02/2017 at HVSTE40 Huonville/ Football Club Entrance, Wilmot Rd, Sample Tap. A review of the system found low chlorine residuals within the Ranelagh Reservoir. Reservoir was disinfected and the surrounding pipelines were flushed. A resample was sent for analysis and was clear. Investigation of the cause of the failure was inconclusive.

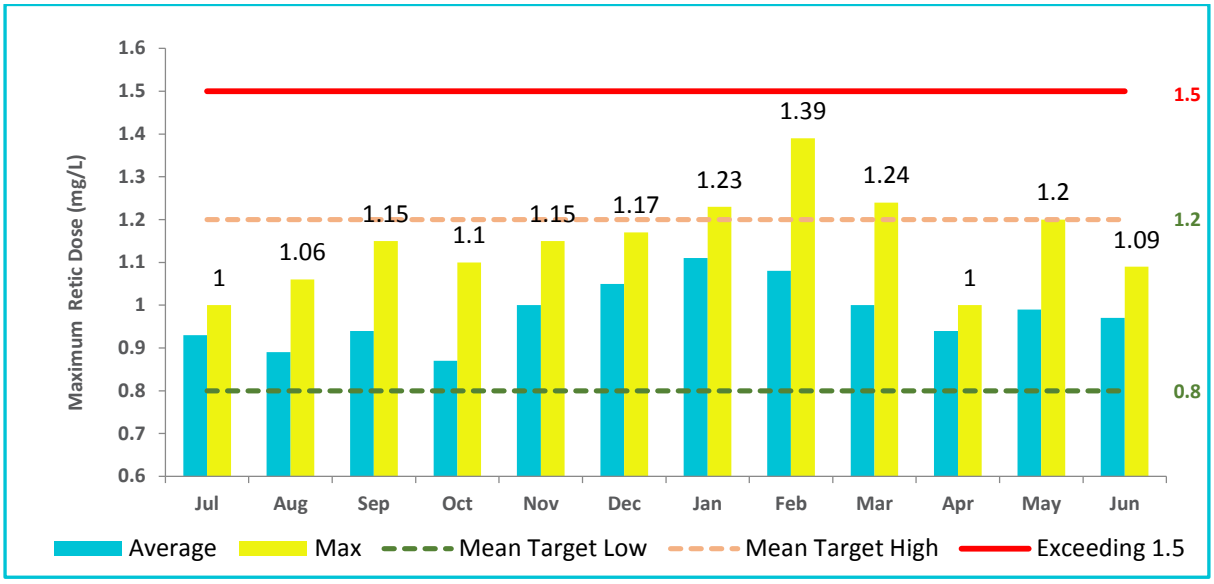


Figure 6.33.4-b Average reticulation fluoride dose by month (2016-17)

Table 6.33.4-a Metals performance 2016-17

Metals – health regulated parameters (2016–17)								
Parameter	**Limit**	**Unit**	**Samples**	**Exceedances**	**Performance %**	**Mean**	**Min.**	**Max.**
Antimony	0.003	mg/L	8	0	100	<0.0005	<0.0005	<0.0005
Arsenic	0.01	mg/L	8	0	100	0.0005	<0.0003	<0.001
Barium	2	mg/L	8	0	100	0.0061	0.004	0.0093
Cadmium	0.002	mg/L	8	0	100	<0.0001	<0.0001	<0.0001
Chromium	0.05	mg/L	8	0	100	0.0004	<0.0001	<0.001
Copper	2	mg/L	8	0	100	0.0043	0.003	0.0066
Lead	0.01	mg/L	8	0	100	0.0002	<0.0001	<0.0005
Manganese	0.5	mg/L	8	0	100	0.001	0.0005	0.0016
Mercury	0.001	mg/L	8	0	100	0.00007	<0.00003	0.00023
Molybdenum	0.05	mg/L	8	0	100	0.0002	<0.0001	<0.0005

Nickel	0.02	mg/L	8	0	100	0.0002	<0.0001	<0.0005
Selenium	0.01	mg/L	8	0	100	0.0006	<0.0001	<0.002

Table 6.33.4-b Disinfection by product performance 2016-17

Disinfection by products – health regulated parameters (2016–17)								
Parameter	**Limit**	**Unit**	**Samples**	**Exceedances**	**Performance %**	**Mean**	**Min.**	**Max.**
Dichloroacetic acid	100	µg/L	20	0	100	2.68	<1	10.00
Monochloroacetic acid	150	µg/L	20	0	100	<5	<3	<5
Trichloroacetic acid	100	µg/L	20	0	100	14.23	<1	32.00
Total trihalomethanes	250	µg/L	24	0	100	43.46	18.00	71.00

**Calculated DBP on 20 samples for Di, Mono and Tri for 4 sites missing last Q.*

6.33.5. Analysis of overall system performance (2016-17)

Table 6.33.5-a Castle Forbes Bay general physical performance (2016-17)

General physical parameters (2016-17)					
Parameter	**Unit**	**Guideline Value**	**Mean**	**Min**	**Max**
Chlorine residual	mg/L	0.1 - <0.8	0.17	0.02	0.85
Colour True	HU	15	n/a	n/a	n/a
pH	Units	6.5 – 8.5	6.99	6.50	8.00
Turbidity	NTU	1	0.37	0.13	0.65

Table 6.33.5-b Cygnet general physical performance (2016-17)

General physical parameters (2016-17)					
Parameter	**Unit**	**Guideline Value**	**Mean**	**Min**	**Max**
Chlorine residual	mg/L	0.1 - <0.8	0.23	0.01	0.88
Colour True	HU	15	n/a	n/a	n/a
pH	Units	6.5 – 8.5	6.92	6.11	7.98
Turbidity	NTU	1	0.35	0.11	0.70

Table 6.33.5-c Cygnet Nichols general physical performance (2016-17)

General physical parameters (2016-17)					
Parameter	**Unit**	**Guideline Value**	**Mean**	**Min**	**Max**
Chlorine residual	mg/L	0.1 - <0.8	0.04	0.01	0.11
Colour True	HU	15	n/a	n/a	n/a
pH	Units	6.5 – 8.5	7.05	6.46	7.62
Turbidity	NTU	1	0.36	0.09	0.72

Table 6.33.5-d Franklin general physical performance (2016-17)

General physical parameters (2016-17)					
Parameter	**Unit**	**Guideline Value**	**Mean**	**Min**	**Max**
Chlorine residual	mg/L	0.1 - <0.8	0.04	0.01	0.1
Colour True	HU	15	n/a	n/a	n/a
pH	Units	6.5 – 8.5	7.31	6.58	8.17
Turbidity	NTU	1	0.43	0.12	0.78

Table 6.33.5-e Geeveston general physical performance (2016-17)

General physical parameters (2016-17)					
Parameter	**Unit**	**Guideline Value**	**Mean**	**Min**	**Max**
Chlorine residual	mg/L	0.1 - <0.8	0.26	0.02	0.58
Colour True	HU	15	1.00	0.50	2.00
pH	Units	6.5 – 8.5	7.09	6.51	7.75
Turbidity	NTU	1	0.38	0.13	1.13

Table 6.33.5-f Geeveston Donnelly general physical performance (2016-17)

General physical parameters (2016-17)					
Parameter	**Unit**	**Guideline Value**	**Mean**	**Min**	**Max**
Chlorine residual	mg/L	0.1 - <0.8	0.19	0.02	0.05
Colour True	HU	15	n/a	n/a	n/a
pH	Units	6.5 – 8.5	7.17	6.45	8.19
Turbidity	NTU	1	0.34	0.08	0.80

Table 6.33.5-g Huonville general physical performance (2016-17)

General physical parameters (2016-17)					
Parameter	**Unit**	**Guideline Value**	**Mean**	**Min**	**Max**
Chlorine residual	mg/L	0.1 - <0.8	0.04	0.01	0.11
Colour True	HU	15	2.33	1.00	4.00
pH	Units	6.5 – 8.5	6.93	6.10	7.71
Turbidity	NTU	1	0.38	0.09	0.66

Table 6.33.5-h Jackson Road general physical performance (2016-17)

General physical parameters (2016-17)					
Parameter	**Unit**	**Guideline Value**	**Mean**	**Min**	**Max**
Chlorine residual	mg/L	0.1 - <0.8	0.10	0.01	0.62
Colour True	HU	15	n/a	n/a	n/a
pH	Units	6.5 – 8.5	7.23	6.63	8.86
Turbidity	NTU	1	0.49	0.17	0.93

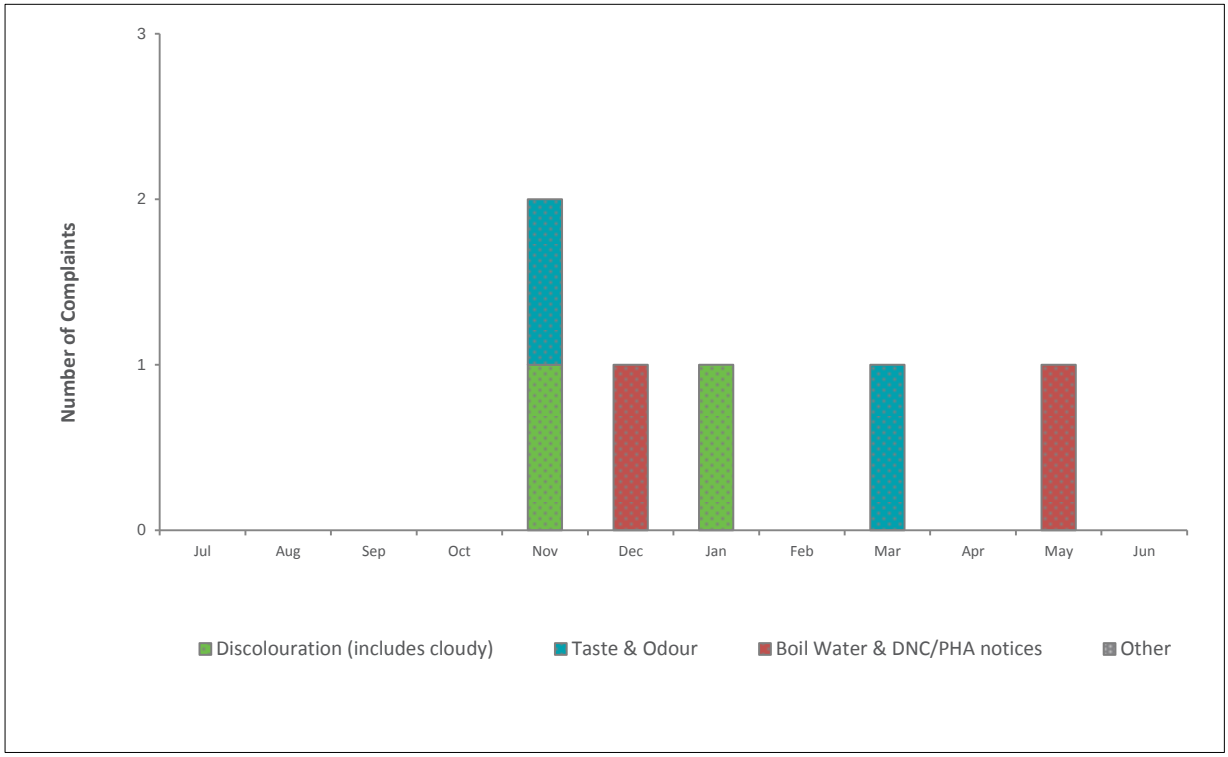


Figure 6.33.5-a Customer complaints by month and type

6.34. Judbury drinking water system

6.34.1. System summary (2016-17)

Judbury drinking water system	
System status (as at 30 June 2017)	BWA
Total number of connections	101
Fluoride	n/a

Performance overview against health targets (2016-17)

Indicator	Outcome	Compliant	Target	Sampling Events	Non-conformances
Microbiological	25.0%	☒	98.0%	12	9
Fluoride	n/a	n/a	n/a	n/a	n/a
Metals	100.0%	☑	100.0%	4	0
DBPs	n/a	n/a	n/a	n/a	n/a

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

Overall system performance (2016-17)

Indicator	Occurrences	Details
Customer complaints	2	Discoloured water, boil water & DNC alerts.
Public health warnings issued	0	
System incidents & issues	9	*E. coli* exceedances.
Catchment and water source issues	0	

Current and future planned infrastructure and operational changes

Project	Description	Progress	Est. Delivery	Est. Spend ($'000)
Judbury Water Supply Upgrade	Treated Water supply to the community.	Tender	FY17/18	$3,724.25

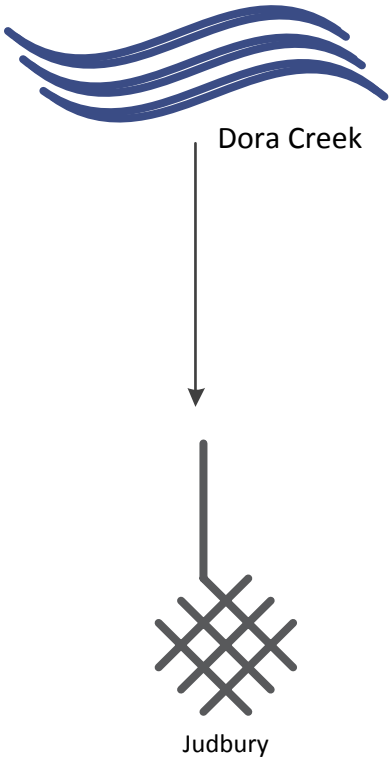


Figure 6.34.1-a Judbury system schematic

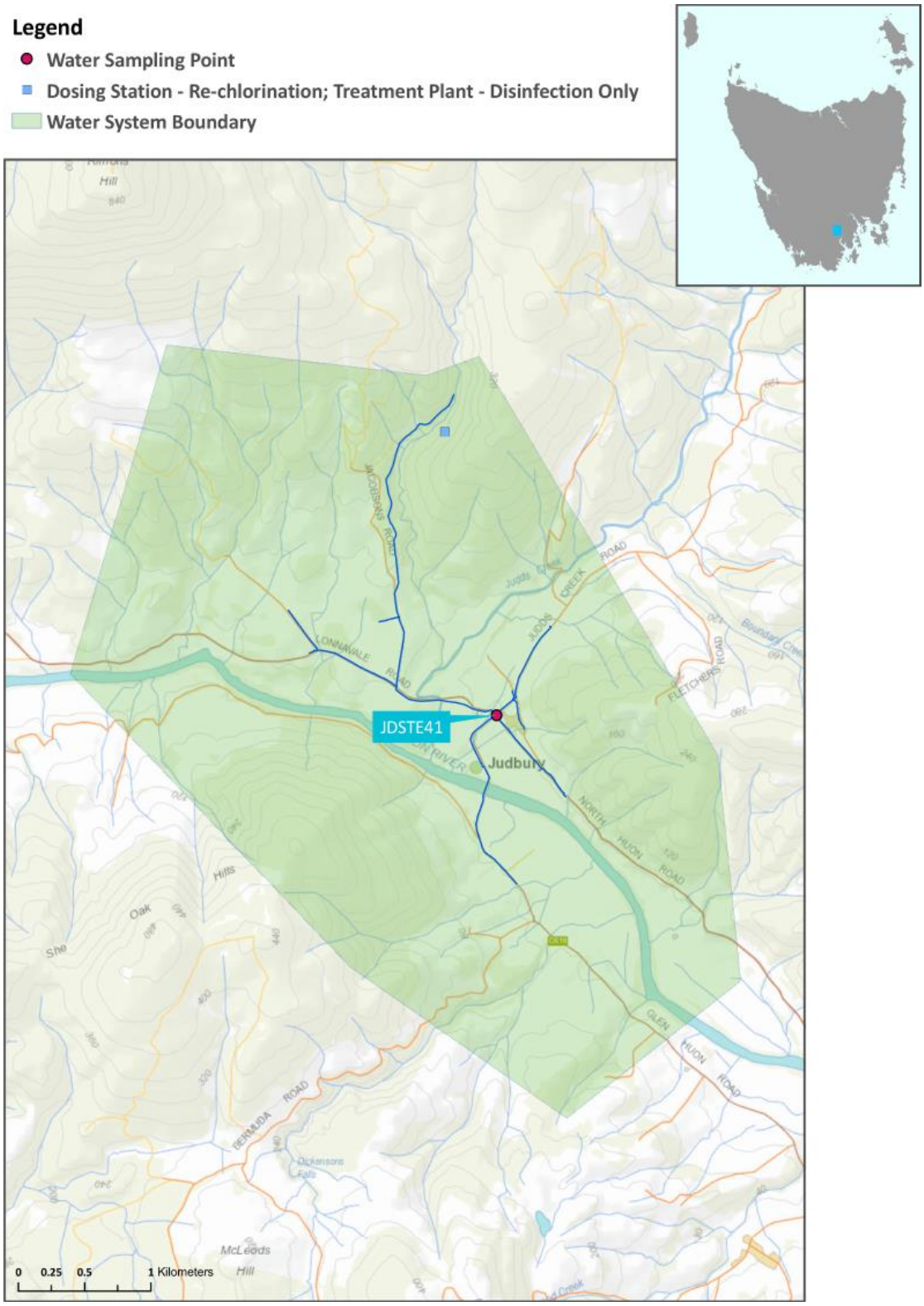


Figure 6.34.1-b Map of Judbury monitoring system

6.34.2. Summary of Annual Reticulation Compliance (2016–17)

Table 6.34.2-a Compliance sampling program

Planned compliance sampling program (2016-17)								
Site name	Site Code	Micros	Metals	DBP	Fluoride (Field)	Fluoride (Lab)	Chemical Profile	Process Chemicals
Judbury Hall/Sample Tap	JDSTE41	M	Q	n/a	n/a	n/a	Q	n/a
Number Planned Samples		**12**	**4**	**0**	**0**	**0**	**4**	**0**
Number Samples Tested		**12**	**4**	**0**	**0**	**0**	**4**	**0**

6.34.3. Summary of current and historic performance (2012-17)

Table 6.34.3-a Historical health performance overview (5 year comparison)

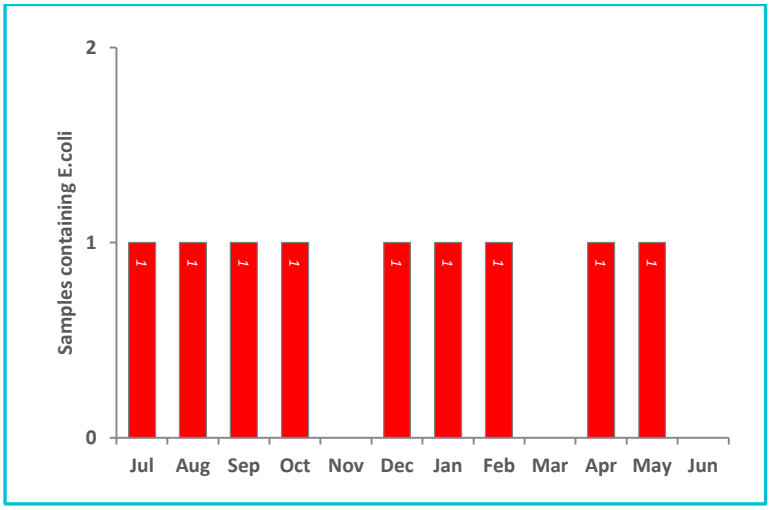
Historical health performance overview (5 year comparison)					
Indicator	2012-13	2013-14	2014-15	2015-16	2016-17
Microbiological	32.0%	41.7%	8.3%	25.5%	25.0%
Fluoride	n/a	n/a	n/a	n/a	n/a
Metals	n/a	100.0%	100.0%	100.0%	100.0%
Disinfection by products	n/a	n/a	n/a	n/a	n/a

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

6.34.4. Analysis of current health performance (2016-17)

Figure 6.34.4-a Microbiological non-compliances by month (2016-17)



- Poor microbiological performance can be attributed to a lack of barriers and the susceptibility to changes in quality from the Dora Creek.

- The risk to public health is mitigated through the communication of the Permanent BWA to customers.

Table 6.34.4-a Metals performance 2016-17

Metals – health regulated parameters (2016–17)								
Parameter	**Limit**	**Unit**	**Samples**	**Exceedances**	**Performance %**	**Mean**	**Min.**	**Max.**
Antimony	0.003	mg/L	4	0	100	<0.0005	<0.0005	<0.0005
Arsenic	0.01	mg/L	4	0	100	0.0005	<0.0003	<0.001
Barium	2	mg/L	4	0	100	0.003	0.002	0.0043
Cadmium	0.002	mg/L	4	0	100	<0.0001	<0.0001	<0.0001
Chromium	0.05	mg/L	4	0	100	0.0003	<0.0001	<0.001
Copper	2	mg/L	4	0	100	0.0069	0.0044	0.0085
Lead	0.01	mg/L	4	0	100	0.0005	0.0002	0.0007
Manganese	0.5	mg/L	4	0	100	0.0015	0.0008	0.002

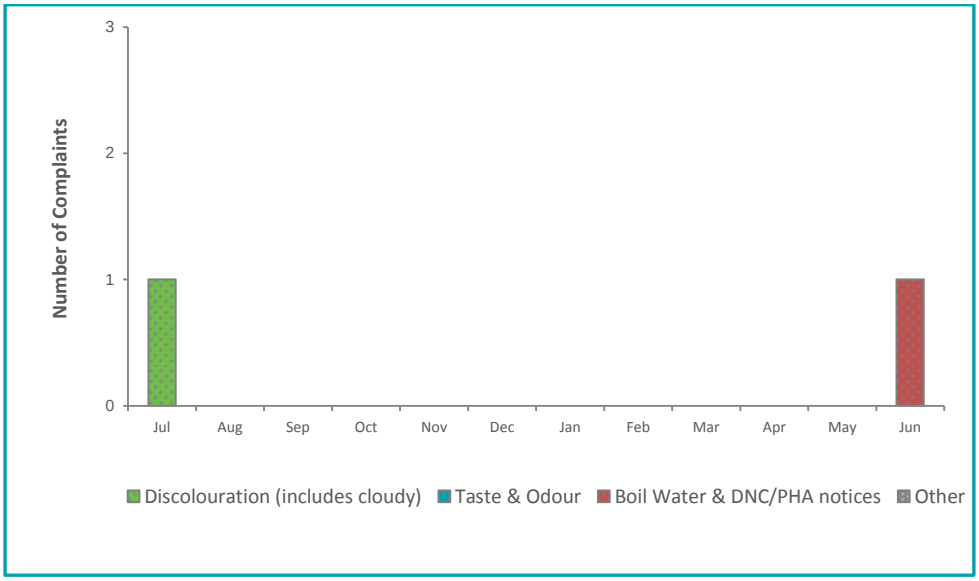
Mercury	0.001	mg/L	4	0	100	0.00004	<0.00003	<0.00005
Molybdenum	0.05	mg/L	4	0	100	0.0002	<0.0001	<0.0005
Nickel	0.02	mg/L	4	0	100	0.0002	<0.0001	<0.0005
Selenium	0.01	mg/L	4	0	100	0.0006	<0.0001	<0.002

6.34.5. Analysis of overall system performance (2016-17)

Table 6.34.5-a General physical performance 2016-17

General physical parameters (2016-17)					
Parameter	**Unit**	**Guideline Value**	**Mean**	**Min**	**Max**
Chlorine residual	mg/L	0.1 - <0.8	n/a	n/a	n/a
Colour True	HU	15	21	17	29
pH	Units	6.5 – 8.5	6.86	6.43	7.53
Turbidity	NTU	1	1.25	0.40	3.26

Figure 6.34.5-a Customer complaints by month and type



6.35. Lady Barron drinking water system

6.35.1. Summary of system status

Lady Barron drinking water system	
System status (as at 30 June 2017)	BWA
Total number of connections	160
Fluoride	n/a

Performance overview against health targets (2016-17)

Indicator	Outcome	Compliant	Target	Sampling Events	Non-conformances
Microbiological	100.0%	☑	98.0%	12	0
Fluoride	n/a	n/a	n/a	n/a	n/a
Metals	100.0%	☑	100.0%	4	0
DBPs	n/a	n/a	n/a	n/a	n/a

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

Overall system performance (2016-17)

Indicator	Occurrences	Details
Customer complaints	2	Discoloured water.
Public health warnings issued	0	BWA issued prior to FY2016-17
System incidents & issues	0	
Catchment and water source issues	0	

Current and future planned infrastructure and operational changes

Project	Description	Progress	Est. Delivery	Est. Spend ($'000)
Flinders Island water supply project	Treated water supply to the communities of Whitemark and Lady Barron.	Commissioning	FY17/18	$453.50

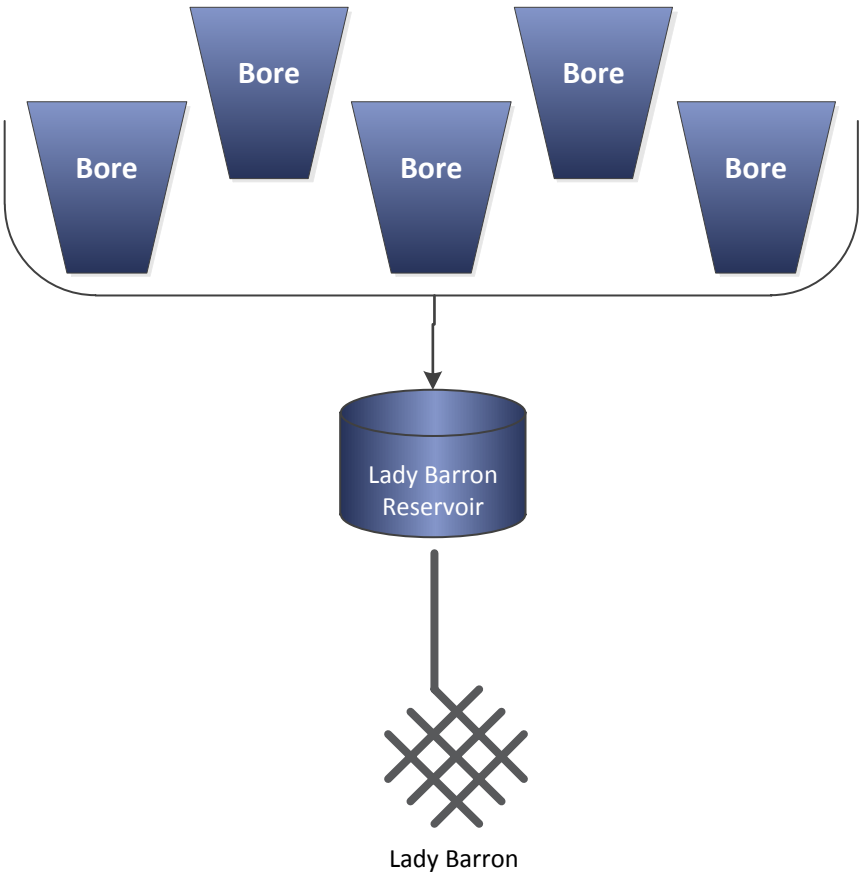


Figure 6.35.1-a Lady Barron system schematic

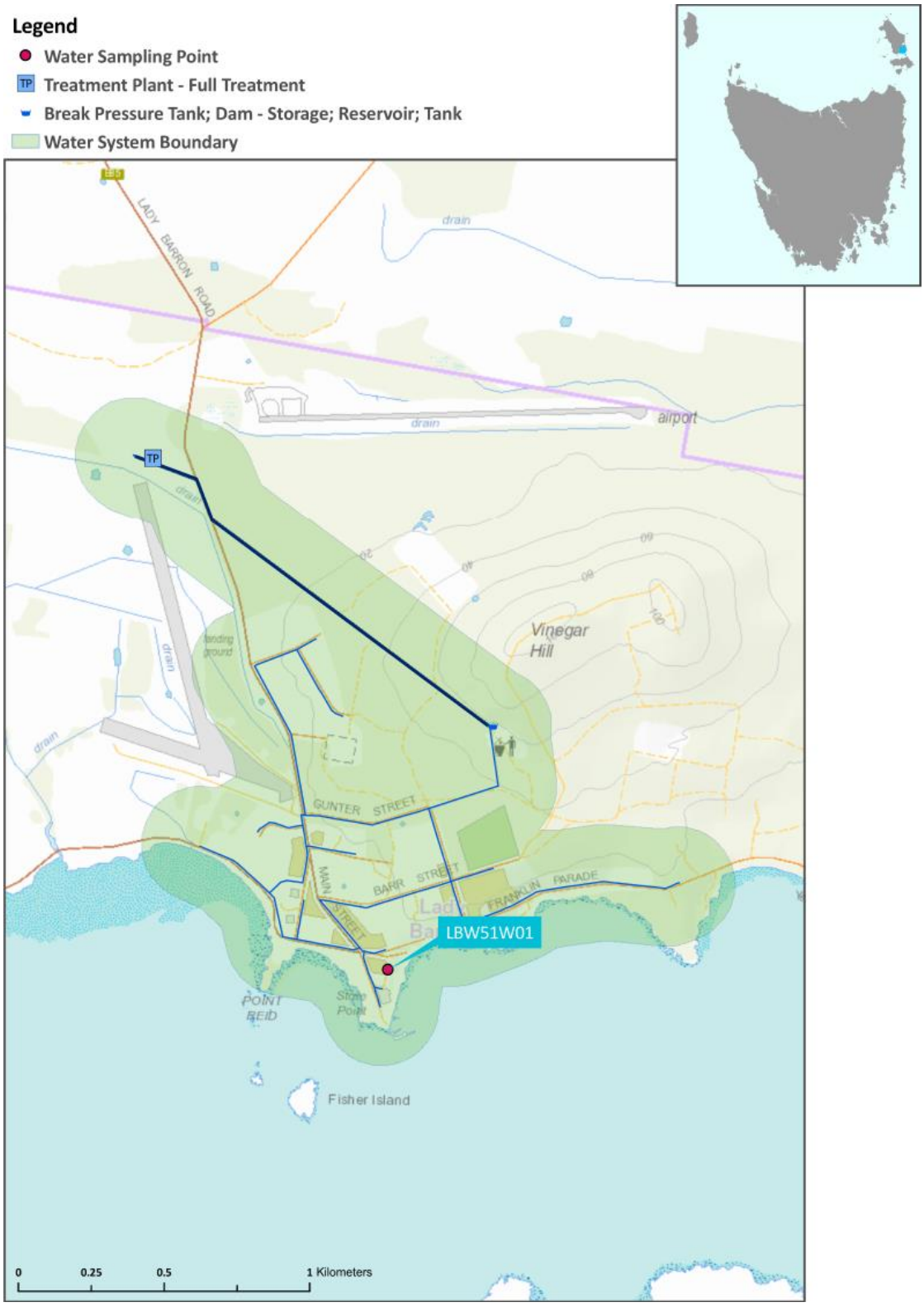


Figure 6.35.1-b Map of Lady Barron monitoring system

6.35.2. Summary of Annual Reticulation Compliance (2016–17)

Table 6.35.2-a Compliance sampling program

Planned compliance sampling program (2016-17)								
Site name	Site Code	Micros	Metals	DBP	Fluoride (Field)	Fluoride (Lab)	Chemical Profile	Process Chemicals
Lady Baron/Police Station	LBW51W01	M	Q	n/a	n/a	n/a	Q	n/a
Number Planned Samples		**12**	**4**	n/a	n/a	n/a	**4**	**0**
Number Samples Tested		**12**	**4**	n/a	n/a	n/a	**4**	**0**

6.35.3. Summary of current and historic performance (2012-17)

Table 6.35.3-a Historical health performance overview (5 year comparison)

Historical health performance overview (5 year comparison)					
Indicator	2012-13	2013-14	2014-15	2015-16	2016-17
Microbiological	100.0%	100.0%	95.0%	91.7%	100.0%
Fluoride	n/a	n/a	n/a	n/a	n/a
Metals	100.0%	100.0%	100.0%	100.0%	100.0%
Disinfection by products	n/a	n/a	n/a	n/a	n/a

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

6.35.4. Analysis of current health performance (2016-17)

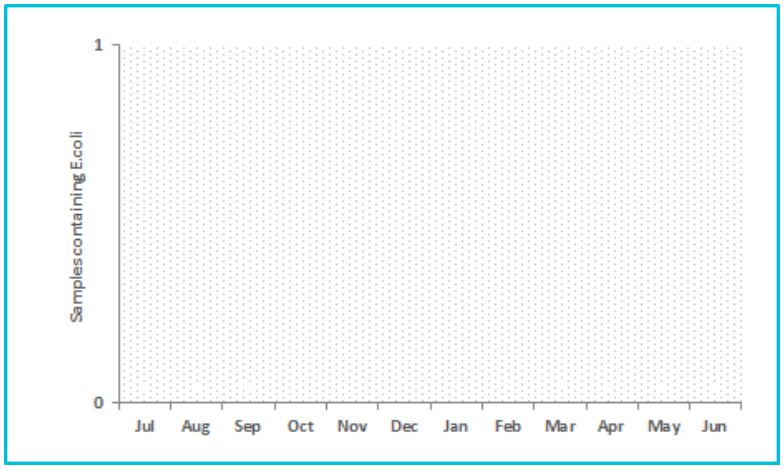


Figure 6.35.4-a Microbiological non-compliances by month (2016-17)

Table 6.35.4-a Metals performance 2016-17

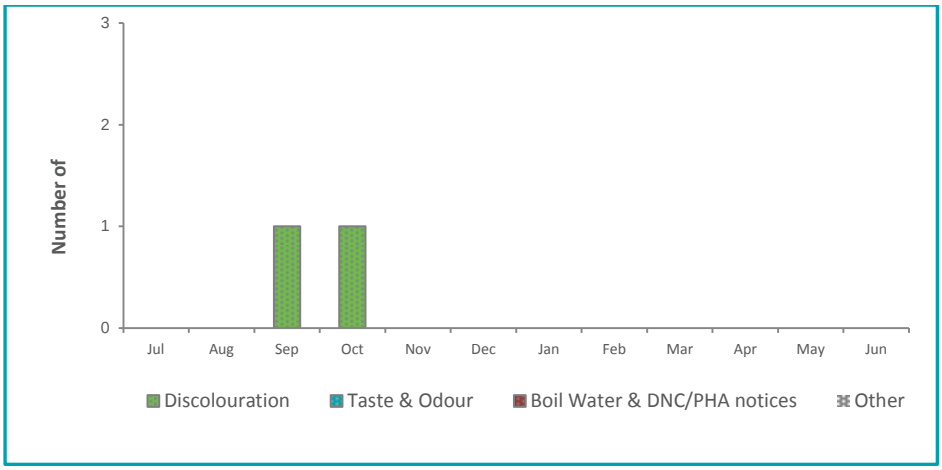
Metals – health regulated parameters (2016–17)								
Parameter	**Limit**	**Unit**	**Samples**	**Exceedances**	**Performance %**	**Mean**	**Min.**	**Max.**
Antimony	0.003	mg/L	4	0	100	<0.0005	<0.0005	<0.0005
Arsenic	0.01	mg/L	4	0	100	0.0005	<0.0003	<0.001
Barium	2	mg/L	4	0	100	0.0252	0.0243	0.0266
Cadmium	0.002	mg/L	4	0	100	<0.0001	<0.0001	<0.0001
Chromium	0.05	mg/L	4	0	100	0.0006	0.0003	<0.001
Copper	2	mg/L	4	0	100	0.001	0.0003	0.0015
Lead	0.01	mg/L	4	0	100	0.0011	0.0003	0.0021
Manganese	0.5	mg/L	4	0	100	0.0058	0.0008	0.015
Mercury	0.001	mg/L	4	0	100	0.00004	<0.00003	<0.00005
Molybdenum	0.05	mg/L	4	0	100	0.0003	<0.0001	0.0006
Nickel	0.02	mg/L	4	0	100	0.0003	<0.0001	<0.0005
Selenium	0.01	mg/L	4	0	100	0.0006	<0.0001	<0.002

6.35.5. Analysis of overall system performance (2016-17)

Table 6.35.5-a General physical performance 2016-17

General physical parameters (2016-17)					
Parameter	**Unit**	**Guideline Value**	**Mean**	**Min**	**Max**
Chlorine residual	mg/L	0.1 - <0.8	0.18	0.00	2.20
Colour True	HU	15	14.84	<1	31
pH	Units	6.5 – 8.5	7.43	5.77	8.50
Turbidity	NTU	1	0.86	0.10	46.6

Figure 6.35.5-a Customer complaints by month and type



6.36. Lake Barrington drinking water system

6.36.1. Summary of system status

Lake Barrington drinking water system	
System status (as at 30 June 2017)	Potable
Total number of connections	1185
Fluoride	Sodium fluoride

Performance overview against health targets (2016-17)

Indicator	Outcome	Compliant	Target	Sampling Events	Non-conformances
Microbiological	100.0%	☑	98.0%	260	0
Fluoride	100.0%	☑	90.0%	104	0
Metals	100.0%	☑	100.0%	20	0
DBPs	100.0%	☑	100.0%	8	0

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

Overall system performance (2016-17)

Indicator	Occurrences	Details
Customer complaints	8	Discoloured water, other (illness from water).
Public health warnings issued	0	
System incidents & issues	0	
Catchment and water source issues	0	

Current and future planned infrastructure and operational changes

Project	Description	Progress	Est. Delivery	Est. Spend
n/a	n/a	n/a	n/a	n/a

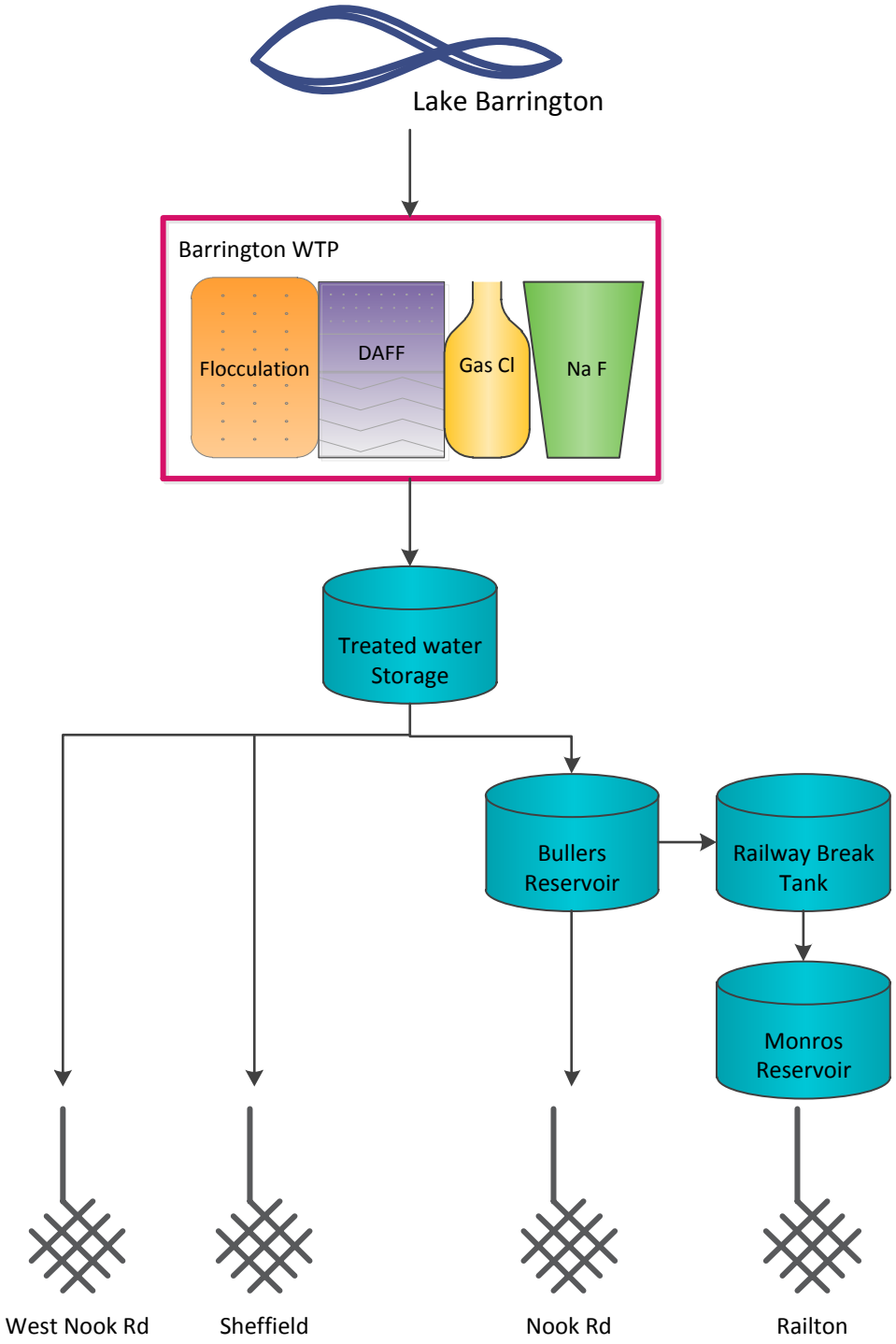


Figure 6.36.1-a Lake Barrington system schematic

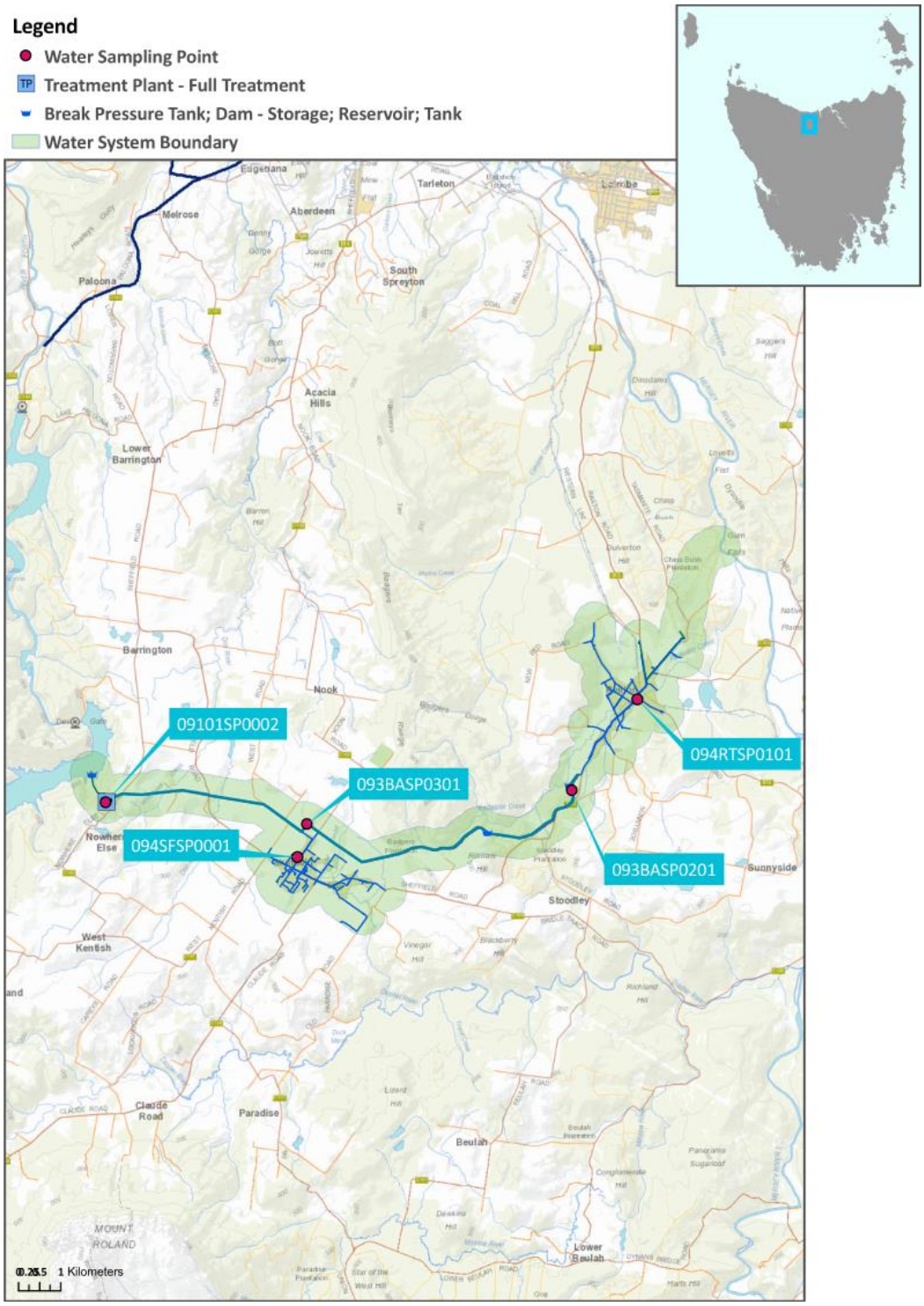


Figure 6.36.1-b Map of Lake Barrington monitoring system

6.36.2. Summary of Annual Reticulation Compliance (2016–17)

Table 6.36.2-a Compliance sampling program

Planned compliance sampling program (2016-17)								
Site name	**Site Code**	**Micros**	**Metals**	**DBP**	**Fluoride (Field)**	**Fluoride (Lab)**	**Chemical Profile**	**Process Chemicals**
Barrington/WTP Clear Water Outlet Sample Point	09101SP0002	W	n/a	n/a	n/a	n/a	Q	M
Barrington/Munros Res Sample Point	093BASP0201	W	n/a	n/a	n/a	n/a	n/a	n/a
Barrington/Butlers Res Sample Point	093BASP0301	W	n/a	n/a	n/a	n/a	n/a	n/a
Barrington/Railton Park Sample Tap	094RTSP0101	W	Q	Q	W	n/a	Q	n/a
Barrington/Sheffield Council Office Sample Tap	094SFSP0001	W	Q	Q	W	M	Q	n/a
Number Planned Samples		**260**	**8**	**8**	**104**	**12**	**12**	**12**
Number Samples Tested		**260**	**8**	**8**	**104**	**12**	**12**	**12**

6.36.3. Summary of current and historic performance (2012-17)

Table 6.36.3-a Historical health performance overview (5 year comparison)

Historical health performance overview (5 year comparison)					
Indicator	**2012-13**	**2013-14**	**2014-15**	**2015-16**	**2016-17**
Microbiological	100.0%	99.6%	100.0%	100.0%	100.0%
Fluoride	n/a	n/a	100.0%	100.0%	100.0%
Metals	n/a	100.0%	99.9%	99.9%	100.0%
Disinfection by products	n/a	100.0%	100.0%	100.0%	100.0%

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

Table 6.36.3-b Distribution fluoride testing overview (5 year comparison)

Distribution fluoride testing overview (5 year comparison)					
Indicator	**2012-13**	**2013-14**	**2014-15**	**2015-16**	**2016-17**
Exceeding 1.5 mg/L	n/a	n/a	0	0	0
Within target range (%)	n/a	n/a	97.0%	85.7%	95.1%
Mean dose (mg/L)	n/a	n/a	1.0	0.91	0.97

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

6.36.4. Analysis of current health performance (2016-17)

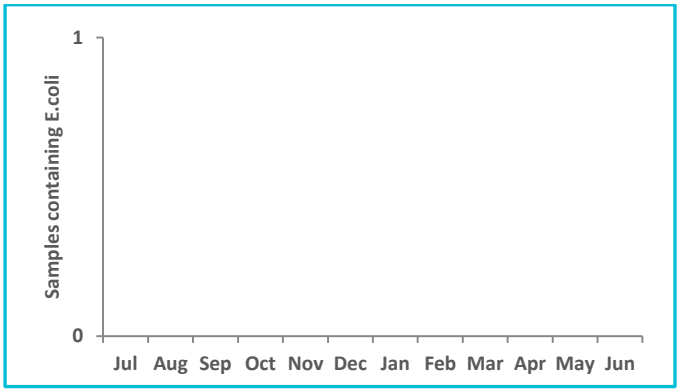


Figure 6.36.4-a Microbiological non-compliances by month (2016-17)

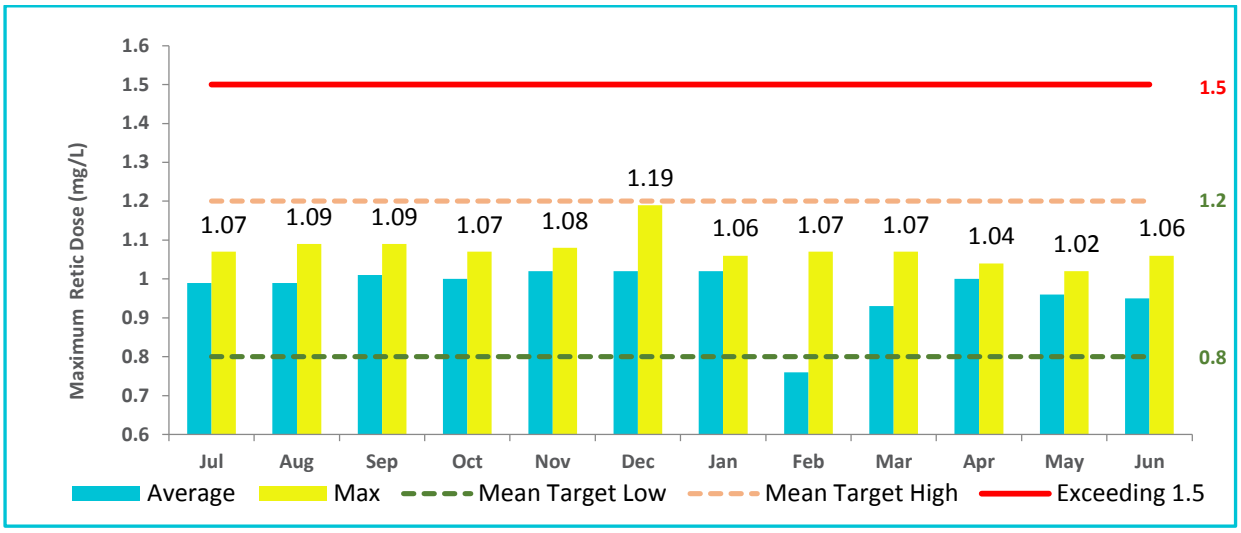


Figure 6.36.4-b Average reticulation fluoride dose by month (2016-17)

Table 6.36.4-a Metals performance 2016-17

Metals – health regulated parameters (2016–17)								
Parameter	**Limit**	**Unit**	**Samples**	**Exceedances**	**Performance %**	**Mean**	**Min.**	**Max.**
Antimony	0.003	mg/L	8	0	100	<0.0005	<0.0005	<0.0005
Arsenic	0.01	mg/L	20	0	100	0.0006	<0.0003	<0.001
Barium	2	mg/L	20	0	100	0.0069	0.003	0.0105
Cadmium	0.002	mg/L	20	0	100	0.0001	<0.0001	0.0003
Chromium	0.05	mg/L	20	0	100	0.0005	<0.0001	<0.001
Copper	2	mg/L	8	0	100	0.0019	<0.0001	0.007
Lead	0.01	mg/L	20	0	100	0.0003	<0.0001	0.0009
Manganese	0.5	mg/L	20	0	100	0.0057	0.0008	0.021
Mercury	0.001	mg/L	20	0	100	0.00005	<0.00003	0.00013
Molybdenum	0.05	mg/L	8	0	100	0.0003	<0.0001	<0.0005
Nickel	0.02	mg/L	20	0	100	0.0004	<0.0001	0.0015
Selenium	0.01	mg/L	20	0	100	0.001	<0.0001	<0.002

Table 6.36.4-b Disinfection by product performance 2016-17

Disinfection by products – health regulated parameters (2016–17)								
Parameter	Limit	Unit	Samples	Exceedances	Performance %	Mean	Min.	Max.
Dichloroacetic acid	100	µg/L	8	0	100	8.63	<1	19
Monochloroacetic acid	150	µg/L	8	0	100	<5	<3	<5
Trichloroacetic acid	100	µg/L	8	0	100	17.63	2	27
Total trihalomethanes	250	µg/L	8	0	100	43	28	54

6.36.5. Analysis of overall system performance (2016-17)

Table 6.36.5-a General physical performance 2016-17

General physical parameters (2016-17)					
Parameter	Unit	Guideline Value	Mean	Min	Max
Chlorine residual	mg/L	0.1 - <0.8	0.55	0.02	1.32
Colour True	HU	15	<1	<1	<1
pH	Units	6.5 – 8.5	7.34	6.60	8.58
Turbidity	NTU	1	0.36	0.01	1.62

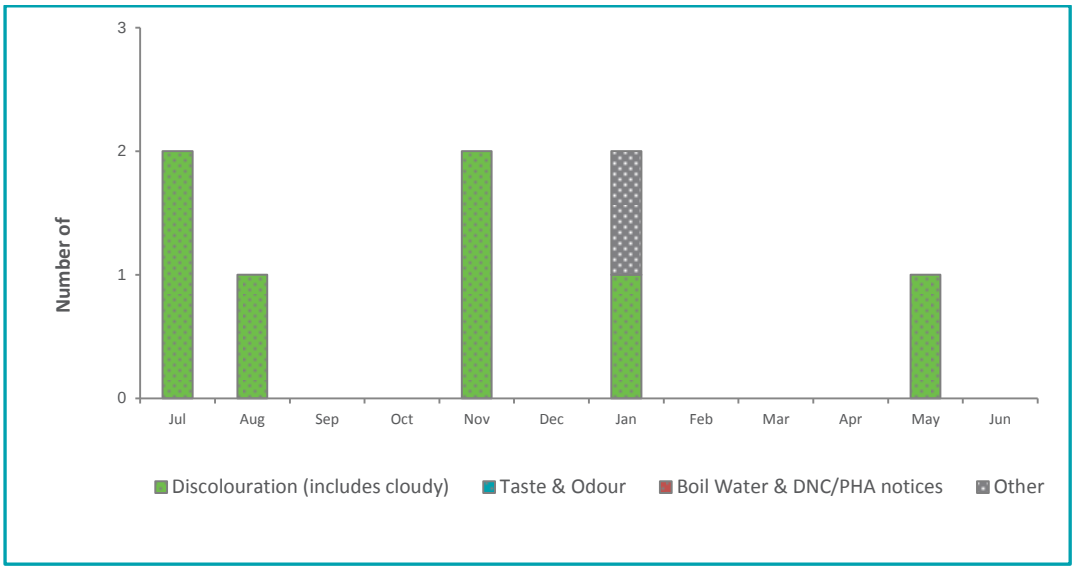


Figure 6.36.5-b Customer complaints by month and type

6.37. Legerwood drinking water system

6.37.1. Summary of system status

Legerwood drinking water system	
System status (as at 30 June 2017)	BWA
Total number of connections	93
Fluoride	n/a

Performance overview against health targets (2016-17)

Indicator	Outcome	Compliant	Target	Sampling Events	Non-conformances
Microbiological	100.0%	☑	98.0%	12	0
Fluoride	n/a	n/a	n/a	n/a	n/a
Metals	100.0%	☑	100.0%	4	0
DBPs	n/a	n/a	n/a	n/a	n/a

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

Overall system performance (2016-17)

Indicator	Occurrences	Details
Customer complaints	2	Boil water & DNC alerts.
Public health warnings issued	0	
System incidents & issues	0	
Catchment and water source issues	0	

Current and future planned infrastructure and operational changes

Project	Description	Progress	Est. Delivery	Est. Spend ($'000)
Ringarooma Valley scheme	New WTP at Ringarooma to supply the communities of Ringarooma, Branxholm, Legerwood, Derby and Winnaleah	Commissioning	FY17/18	$124.82

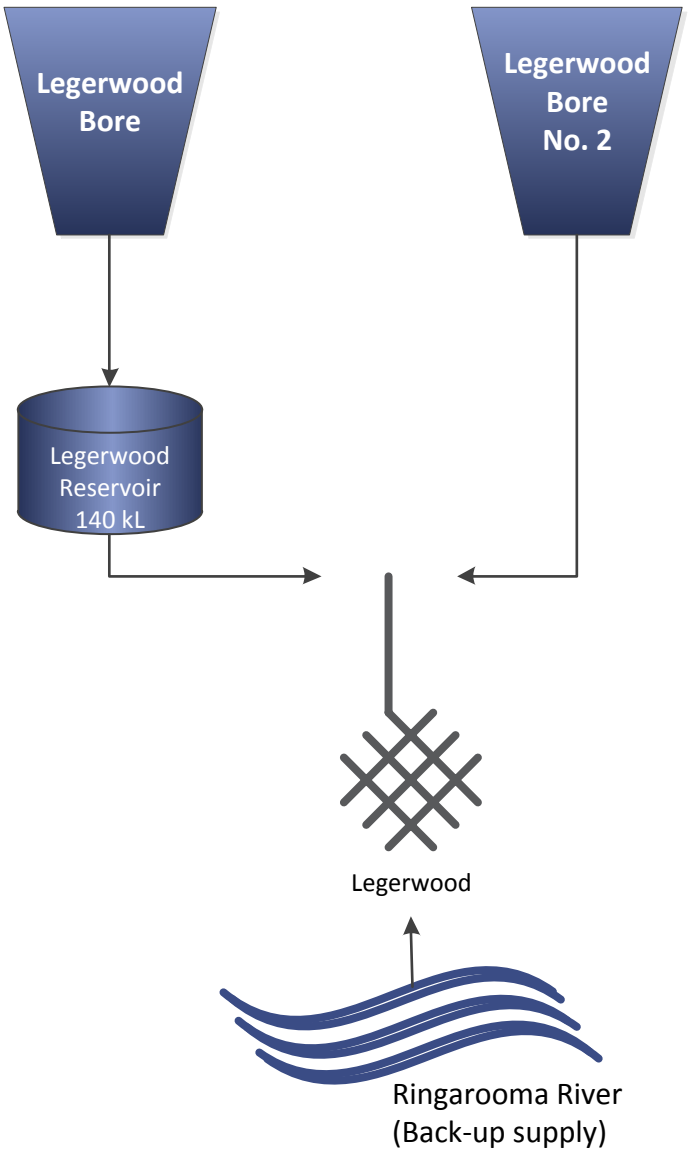


Figure 6.37.1-a Legerwood system schematic

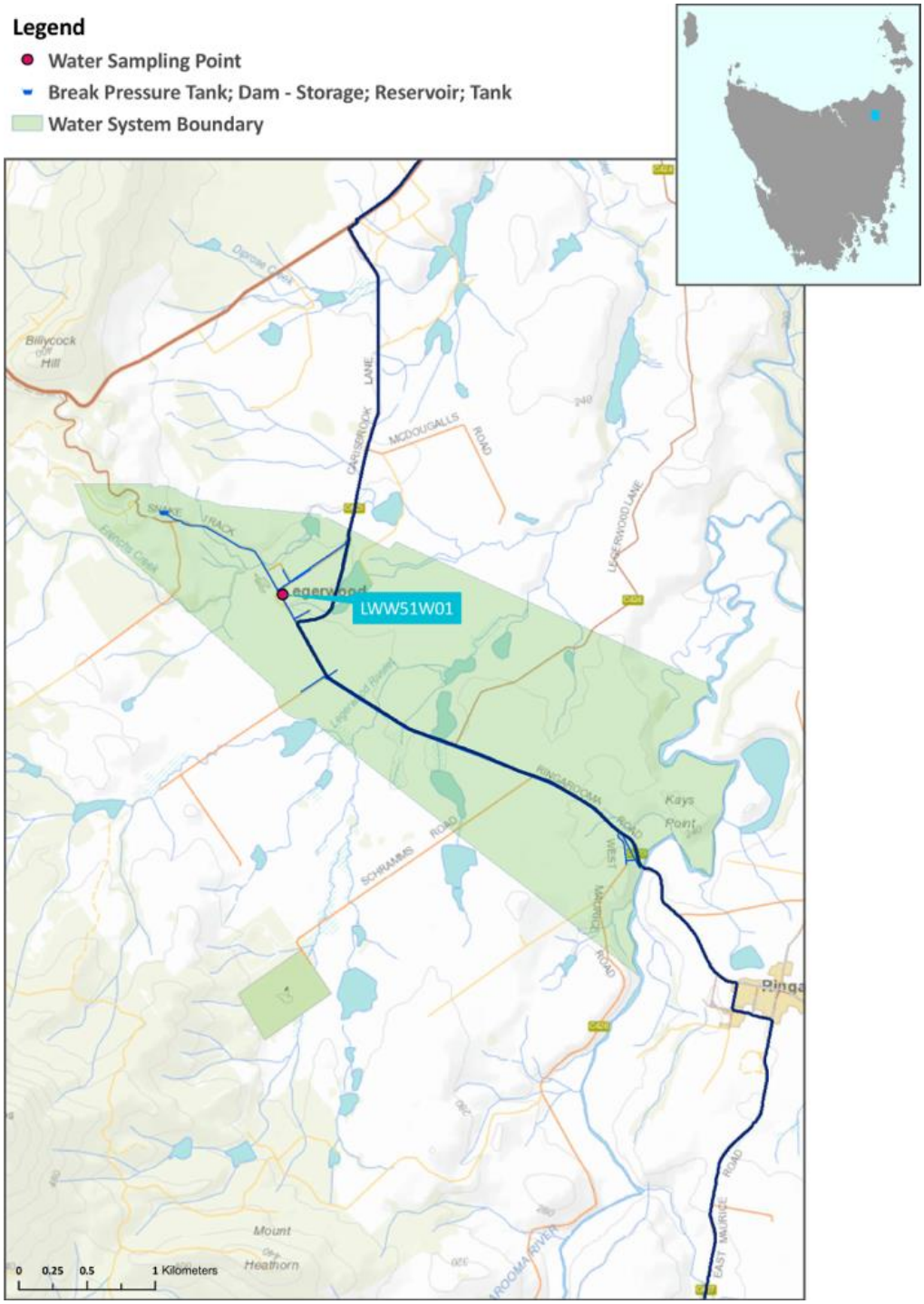


Figure 6.37.1-b Map of Legerwood monitoring system

6.37.2. Summary of Annual Reticulation Compliance (2016–17)

Table 6.37.2-a Compliance sampling program

Planned compliance sampling program (2016-17)								
Site name	Site Code	Micros	Metals	DBP	Fluoride (Field)	Fluoride (Lab)	Chemical Profile	Process Chemicals
Ledgerwood/Public Hall	LWW51W01	M	Q	n/a	n/a	n/a	Q	n/a
Number Planned Samples		**12**	**4**	**0**	**0**	**0**	**4**	**0**
Number Samples Tested		**12**	**4**	**0**	**0**	**0**	**4**	**0**

6.37.3. Summary of current and historic performance (2012-17)

Table 6.37.3-a Historical health performance overview (5 year comparison)

Historical health performance overview (5 year comparison)					
Indicator	2012-13	2013-14	2014-15	2015-16	2016-17
Microbiological	100.0%	100.0%	100.0%	100.0%	100.0%
Fluoride	n/a	n/a	n/a	n/a	n/a
Metals	100.0%	100.0%	100.0%	100.0%	100.0%
Disinfection by products	n/a	n/a	n/a	n/a	n/a

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

6.37.4. Analysis of current health performance (2016-17)

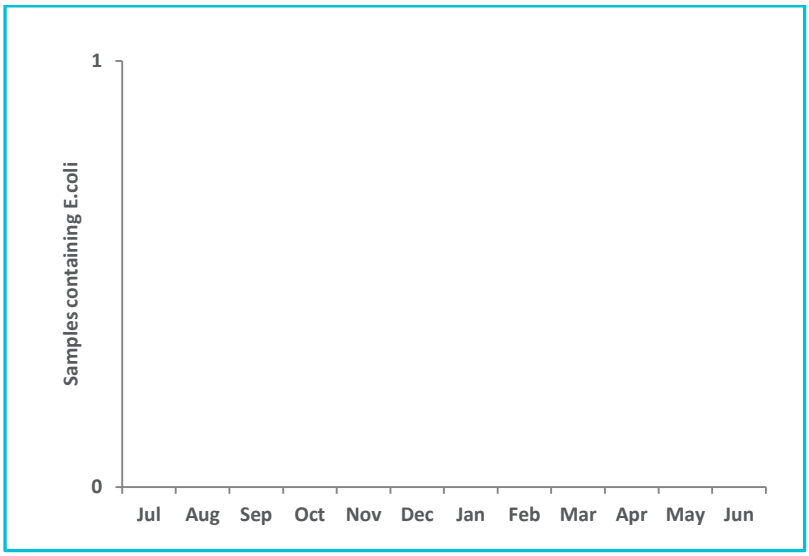


Figure 6.37.4-a Microbiological non-compliances by month (2016-17)

Table 6.37.4-a Metals performance 2016-17

Metals – health regulated parameters (2016–17)								
Parameter	Limit	Unit	Samples	Exceedances	Performance %	Mean	Min.	Max.
Antimony	0.003	mg/L	4	0	100	<0.0005	<0.0005	<0.0005
Arsenic	0.01	mg/L	4	0	100	0.0005	<0.0003	<0.001
Barium	2	mg/L	4	0	100	0.0188	0.0039	0.0256
Cadmium	0.002	mg/L	4	0	100	<0.0001	<0.0001	<0.0001
Chromium	0.05	mg/L	4	0	100	0.0003	<0.0001	<0.001
Copper	2	mg/L	4	0	100	0.0053	0.002	0.0104
Lead	0.01	mg/L	4	0	100	0.0007	0.0001	0.0014
Manganese	0.5	mg/L	4	0	100	0.0156	0.0078	0.0202
Mercury	0.001	mg/L	4	0	100	0.00004	<0.00003	<0.00005
Molybdenum	0.05	mg/L	4	0	100	0.0002	<0.0001	<0.0005
Nickel	0.02	mg/L	4	0	100	0.0003	<0.0001	<0.0005
Selenium	0.01	mg/L	4	0	100	0.0006	<0.0001	<0.002

6.37.5. Analysis of overall system performance (2016-17)

Table 6.37.5-a General physical performance 2016-17

General physical parameters (2016-17)					
Parameter	Unit	Guideline Value	Mean	Min	Max
Chlorine residual	mg/L	0.1 - <0.8	0.59	0.10	0.90
Colour True	HU	15	<1	<1	<1
pH	Units	6.5 – 8.5	6.75	5.07	7.92
Turbidity	NTU	1	0.41	0.13	1.18

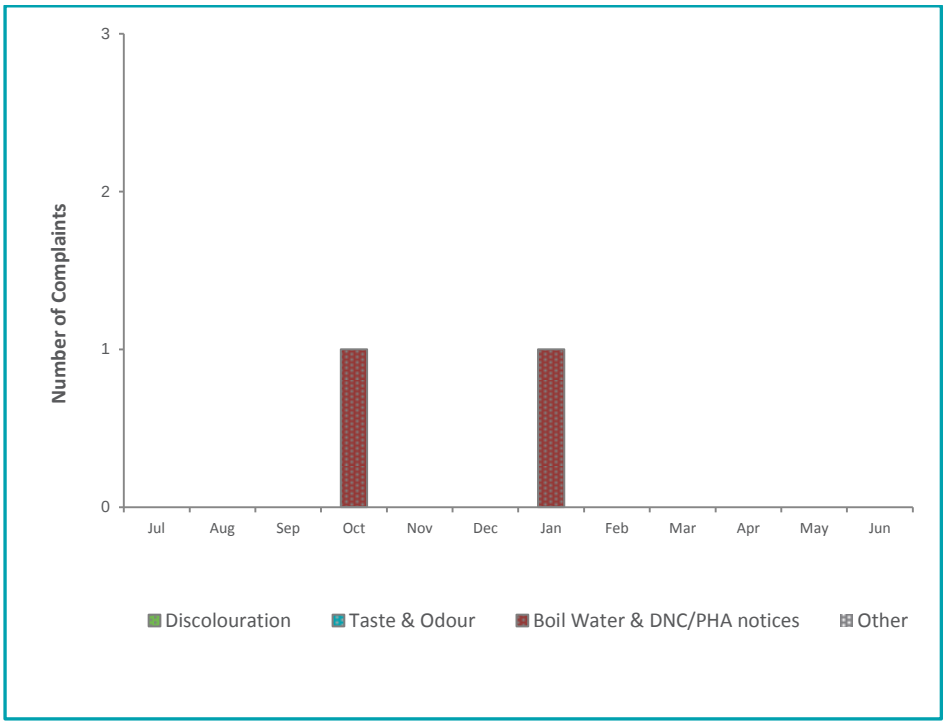


Figure 6.37.5-a Customer complaints by month and type

6.38. Leven River (Penguin) drinking water system

6.38.1. Summary of system status

Leven River (Penguin) drinking water system	
System status (as at 30 June 2017)	Potable
Total number of connections	2189
Fluoride	Fluorosilicic acid

Performance overview against health targets (2016-17)

Indicator	Outcome	Compliant	Target	Sampling Events	Non-conformances
Microbiological	100.0%	☑	98.0%	311	0
Fluoride	100.0%	☑	100.0%	104	0
Metals	99.5%	☒	100.0%	20	1
DBPs	100.0%	☑	100.0%	8	0

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

Overall system performance (2016-17)

Indicator	Occurrences	Details
Customer complaints	24	Discoloured water, taste & odour.
Public health warnings issued	0	
System incidents & issues	1	Metals exceedance.
Catchment and water source issues	0	

Current and future planned infrastructure and operational changes

Project	Description	Progress	Est. Delivery	Est. Spend
n/a	n/a	n/a	n/a	n/a

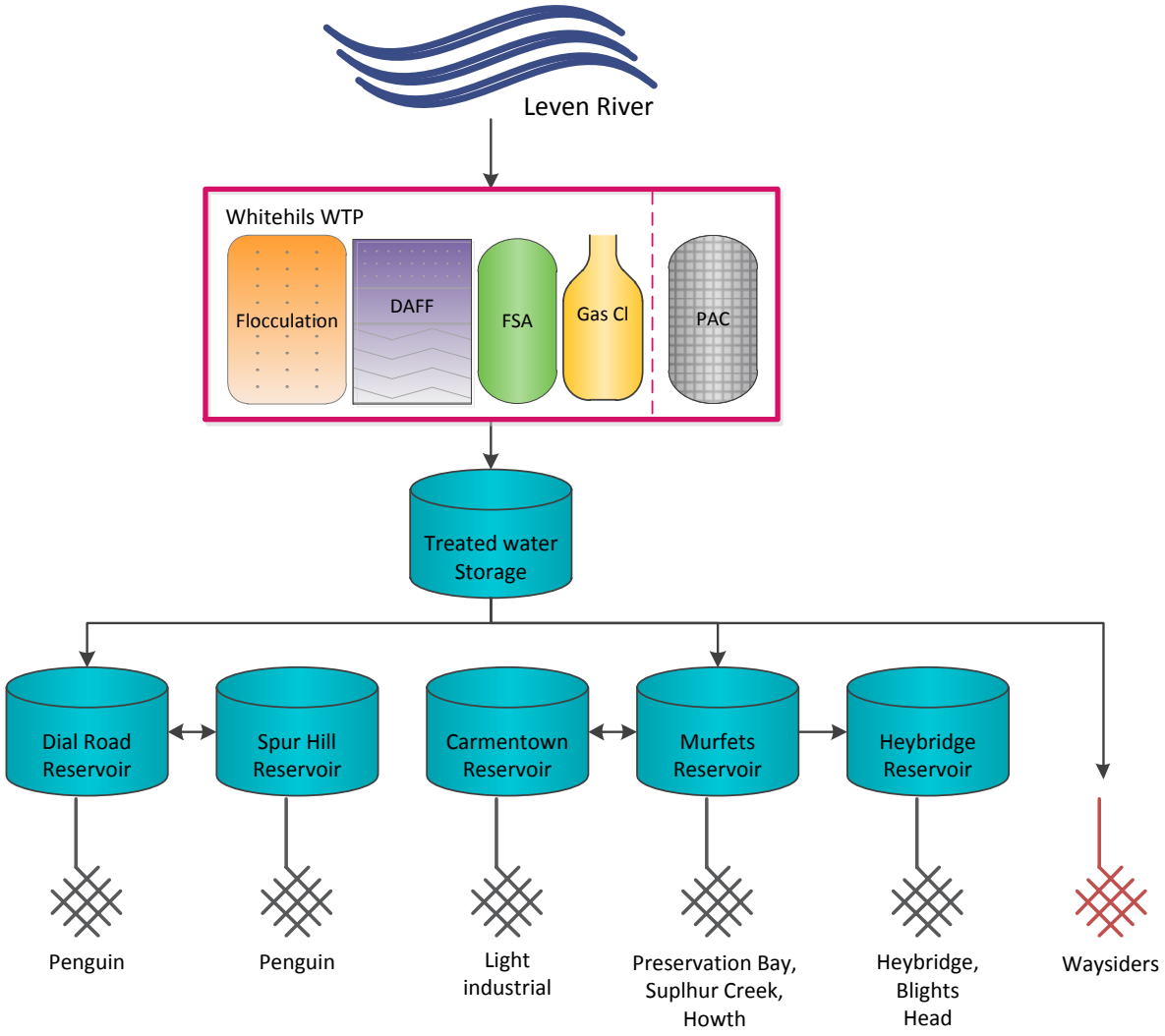


Figure 6.38.1-a Leven River (Penguin) system schematic

Figure 6.38.1-b Map of Leven River (Penguin) monitoring system

6.38.2. Summary of Annual Reticulation Compliance (2016–17)

Table 6.38.2-a Compliance sampling program

Planned compliance sampling program (2016-17)								
Site name	**Site Code**	**Micros**	**Metals**	**DBP**	**Fluoride (Field)**	**Fluoride (Lab)**	**Chemical Profile**	**Process Chemicals**
Whitehills/WTP Storage Sample Point	051PGSP0002	W	n/a	n/a	n/a	n/a	Q	M
Whitehills/Heybridge Res Sample Point	053HBSP0001	W	n/a	n/a	n/a	n/a	n/a	n/a
Whitehills/Murfets Res Sample Point	053PGSP0001	W	n/a	n/a	n/a	n/a	n/a	n/a
Whitehills/Heybridge Fire Station Tap	054HBSP0001	W	Q	Q	W	M	Q	n/a
Whitehills/Penguin Surf Club Tap	054PGSP0001	W	n/a	n/a	n/a	n/a	n/a	n/a
Whitehills/Patrick St Clinic Sample Point	054PGSP0003	W	Q	Q	W	n/a	Q	n/a
Number Planned Samples		**312**	**8**	**8**	**104**	**12**	**12**	**12**
Number Samples Tested		**311#**	**8**	**8**	**104**	**12**	**12**	**12**

- # Micro sample missed on 6/7/16 for site 053PGSP0001: Whitehills/Murfets Res Sample Point due to site inaccessibility.

6.38.3. Summary of current and historic performance (2012-17)

Table 6.38.3-a Historical health performance overview (5 year comparison)

Historical health performance overview (5 year comparison)					
Indicator	**2012-13**	**2013-14**	**2014-15**	**2015-16**	**2016-17**
Microbiological	100.0%	100.0%	100.0%	99.6%	100.0%
Fluoride	n/a	n/a	100.0%	100.0%	100.0%
Metals	n/a	100.0%	100.0%	100.0%	99.5%
Disinfection by products	n/a	100.0%	100.0%	100.0%	100.0%

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

Table 6.38.3-b Distribution fluoride testing overview (5 year comparison)

Distribution fluoride testing overview (5 year comparison)					
Indicator	**2012-13**	**2013-14**	**2014-15**	**2015-16**	**2016-17**
Exceeding 1.5 mg/L	n/a	n/a	0	0	0
Within target range (%)	n/a	n/a	55.0%	47.7%	18.5%
Mean dose (mg/L)	n/a	n/a	0.80	0.76	0.46

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

6.38.4. Analysis of current health performance (2016-17)

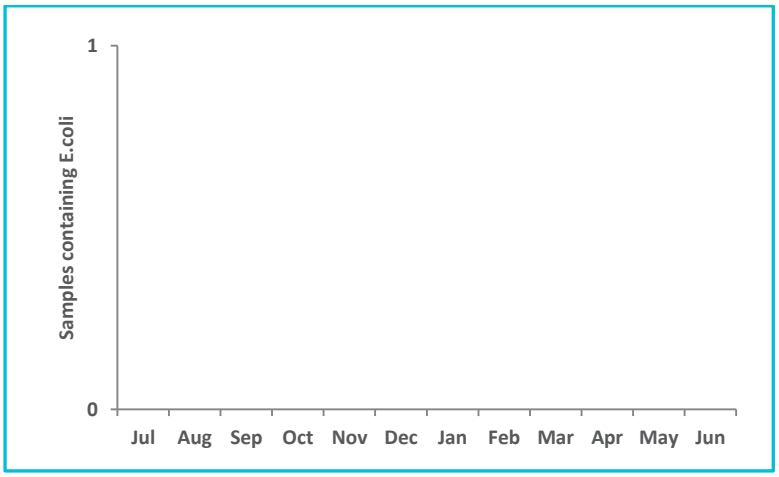


Figure 6.38.4-a Microbiological non-compliances by month (2016-17)

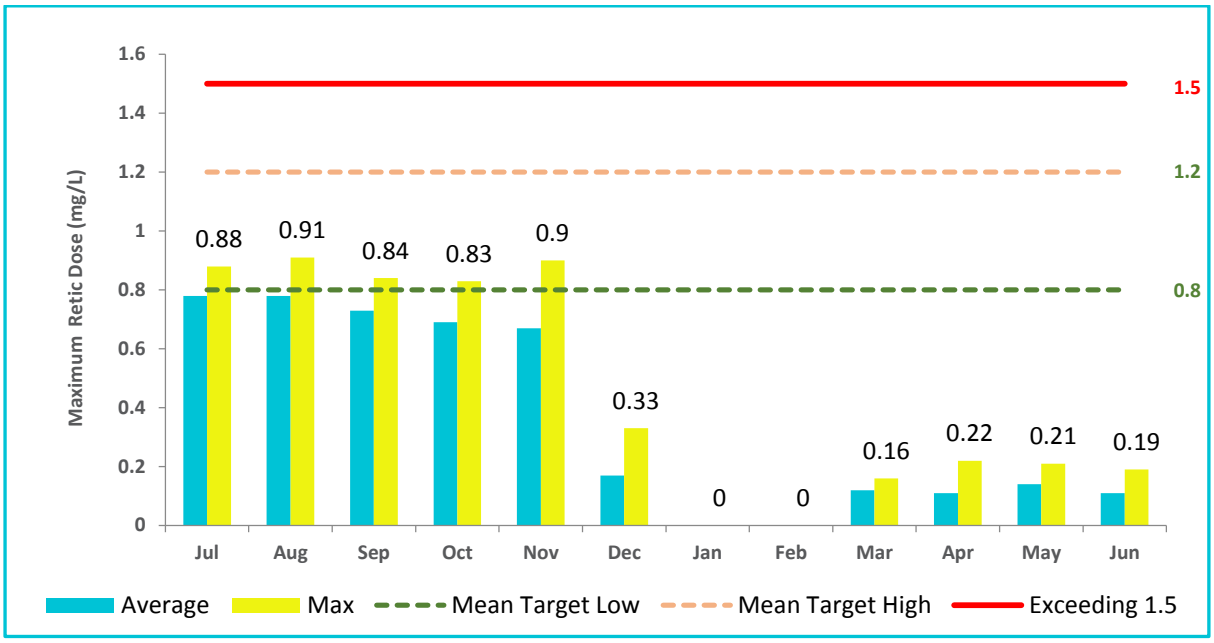


Figure 6.38.4-b Average reticulation fluoride dose by month (2016-17)

Table 6.38.4-a Metals performance 2016-17

Metals – health regulated parameters (2016–17)								
Parameter	**Limit**	**Unit**	**Samples**	**Exceedances**	**Performance %**	**Mean**	**Min.**	**Max.**
Antimony	0.003	mg/L	8	0	100	<0.0005	<0.0005	<0.0005
Arsenic	0.01	mg/L	20	0	100	0.0006	<0.0003	<0.001
Barium	2	mg/L	20	0	100	0.0187	0.012	0.0832
Cadmium	0.002	mg/L	20	0	100	0.0001	<0.0001	0.0002
Chromium	0.05	mg/L	20	1*	95	0.0032	<0.0001	0.0533
Copper	2	mg/L	8	0	100	0.0256	0.001	0.0664
Lead	0.01	mg/L	20	0	100	0.0003	<0.0001	0.0007
Manganese	0.5	mg/L	20	0	100	0.0097	<0.001	0.0698
Mercury	0.001	mg/L	20	0	100	0.00006	<0.00003	0.00019
Molybdenum	0.05	mg/L	8	0	100	0.0003	<0.0001	<0.0005
Nickel	0.02	mg/L	20	0	100	0.0005	<0.0001	0.0024
Selenium	0.01	mg/L	20	0	100	0.001	<0.0001	<0.002

- * One metal detection for Chromium above ADWG health limits. Flushing of system was performed and resample was clear.

Table 6.39.4-b Disinfection by product performance 2016-17

Disinfection by products – health regulated parameters (2016–17)								
Parameter	Limit	Unit	Samples	Exceedances	Performance %	Mean	Min.	Max.
Dichloroacetic acid	100	µg/L	8	0	100	3.56	<1	9
Monochloroacetic acid	150	µg/L	8	0	100	<5	<3	<5
Trichloroacetic acid	100	µg/L	8	0	100	7.13	<2	19
Total trihalomethanes	250	µg/L	8	0	100	38.63	12	67

6.38.5. Analysis of overall system performance (2016-17)

Table 6.38.5-a General physical performance 2016-17

General physical parameters (2016-17)					
Parameter	Unit	Guideline Value	Mean	Min	Max
Chlorine residual	mg/L	0.1 - <0.8	0.35	0.00	1.60
Colour True	HU	15	<1	<1	<1
pH	Units	6.5 – 8.5	7.47	6.77	8.86
Turbidity	NTU	1	0.44	0.10	2.26

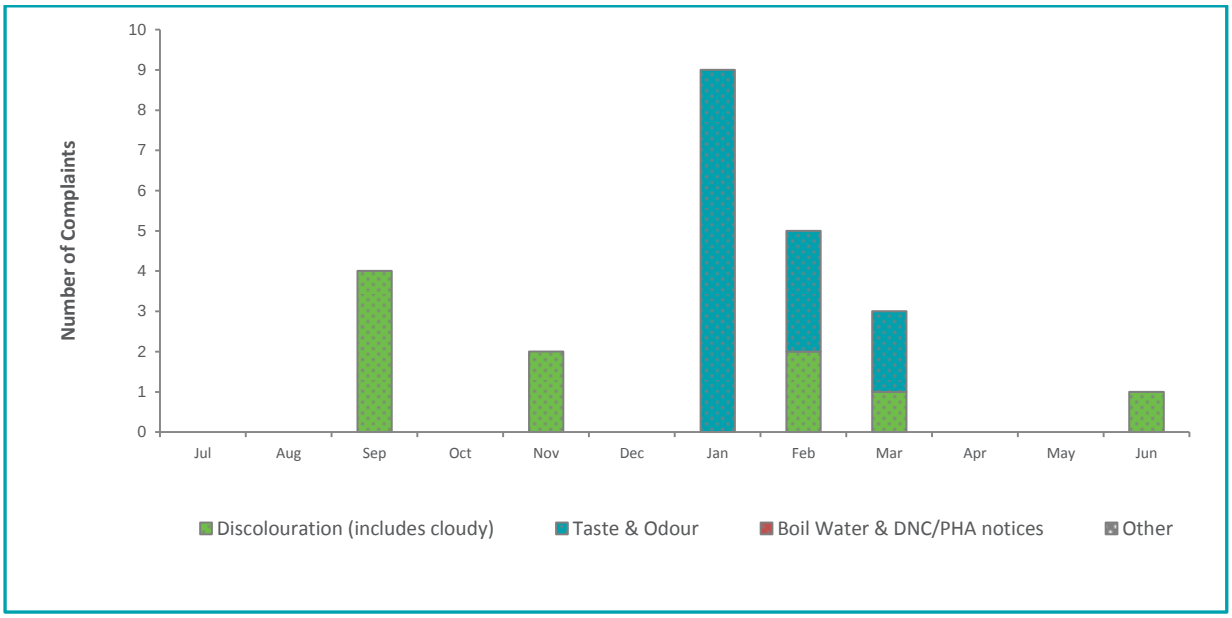


Figure 6.38.5-a Customer complaints by month and type

6.39. Longford drinking water system

6.39.1. Summary of system status

Longford drinking water system	
System status (as at 30 June 2017)	Potable
Total number of connections	4511
Fluoride	Fluorosilicic acid

Performance overview against health targets (2016-17)

Indicator	Outcome	Compliant	Target	Sampling Events	Non-conformances
Microbiological	99.5%	☑	98.0%	208	1
Fluoride	100.0%	☑	100.0%	104	0
Metals	100.0%	☑	100.0%	8	0
DBPs	100.0%	☑	100.0%	8	0

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

Overall system performance (2016-17)

Indicator	Occurrences	Details
Customer complaints	35	Discoloured water, taste & odour.
Public health warnings issued	0	
System incidents & issues	1	E. coli exceedance.
Catchment and water source issues	4	Trace levels of pesticides were detected in the catchment. All results were well below the ADWG health limits.

Current and future planned infrastructure and operational changes

Project	Description	Progress	Est. Delivery	Est. Spend ($'000)
Longford Disinfection Project	Installation of UV disinfection or similar at the Longford WTP.	Planning	FY17/18	$110.36

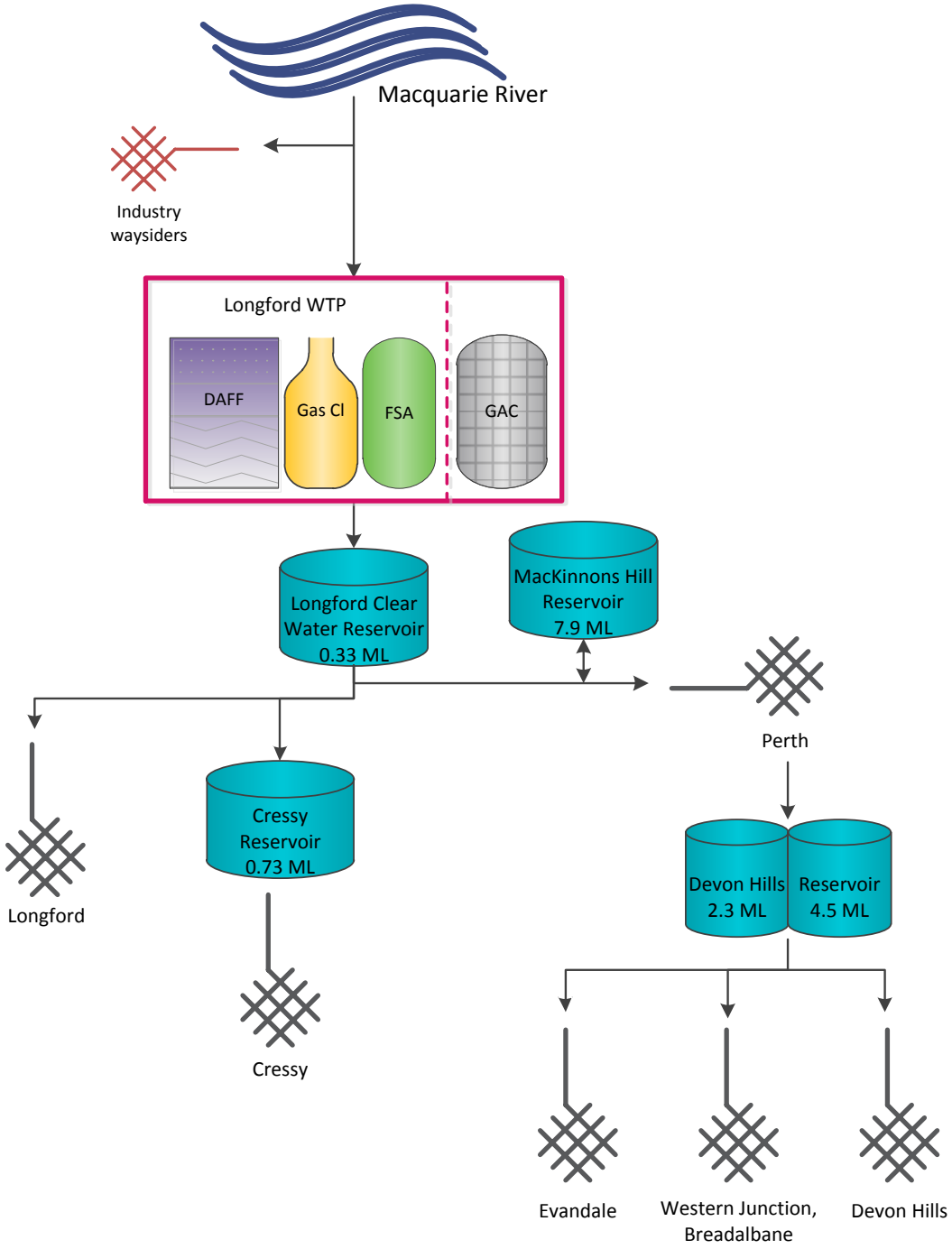


Figure 6.39.1-a Longford system schematic

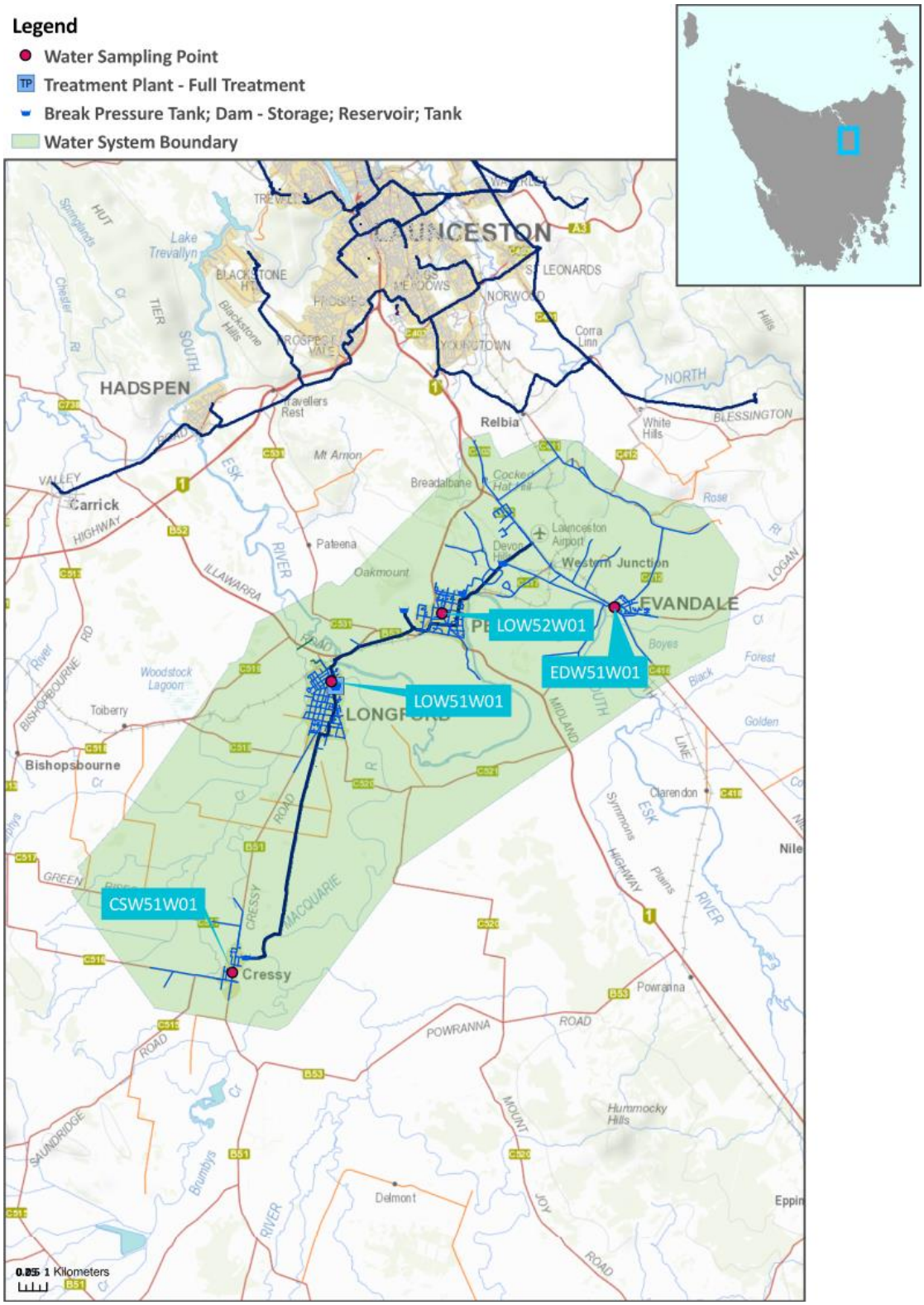


Figure 6.39.1-b Map of Longford monitoring system

6.39.2. Summary of Annual Reticulation Compliance (2016–17)

Table 6.39.2-a Compliance sampling program

Planned compliance sampling program (2016-17)								
Site name	Site Code	Micros	Metals	DBP	Fluoride (Field)	Fluoride (Lab)	Chemical Profile	Process Chemicals
Longford/Cressy Public Toilets	CSW51W01	W	Q	Q	W	n/a	Q	n/a
Longford/Evandale History Centre, High St	EDW51W01	W	Q	Q	n/a	n/a	Q	n/a
Longford/Lyttleton St Toilets	LOW51W01	W	n/a	n/a	n/a	n/a	n/a	n/a
Longford/Perth, Little Mulgrave St	LOW52W01	W	n/a	n/a	W	M	n/a	n/a
Number Planned Samples		**208**	**8**	**8**	**104**	**12**	**8**	**0**
Number Samples Tested		**208**	**8**	**8**	**104**	**12**	**8**	**0**

6.39.3. Summary of current and historic performance (2012-17)

Table 6.39.3-a Historical health performance overview (5 year comparison)

Historical health performance overview (5 year comparison)					
Indicator	2012-13	2013-14	2014-15	2015-16	2016-17
Microbiological	100.0%	100.0%	99.5%	100.0%	99.5%
Fluoride	100.0%	100.0%	100.0%	100.0%	100.0%
Metals	100.0%	100.0%	100.0%	100.0%	100.0%
Disinfection by products	100.0%	100.0%	100.0%	100.0%	100.0%

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

Table 6.39.3-b Distribution fluoride testing overview (5 year comparison)

Distribution fluoride testing overview (5 year comparison)					
Indicator	**2012-13**	**2013-14**	**2014-15**	**2015-16**	**2016-17**
Exceeding 1.5 mg/L	0	0	0	0	0
Within target range (%)	n/a	n/a	94.0%	77.4%	98.1%
Mean dose (mg/L)	n/a	n/a	0.93	0.78	0.93
on or below target within 10% of target greater than 10% outside target					
Refer to Section 5.2 for reporting methodology					

6.39.4. Analysis of current health performance (2016-17)

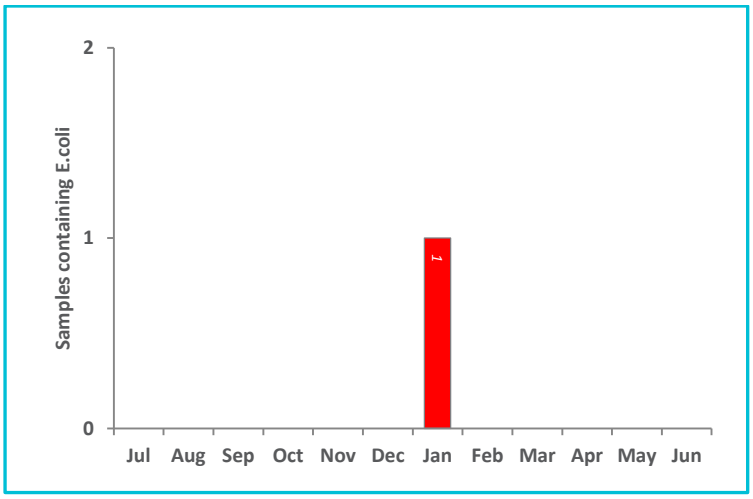


Figure 6.39.4-a Microbiological non-compliances by month (2016-17)

- E.coli detection of 1 MPN/100mL from sample taken on 25/01/2017 from EDW51W01 – Evandale History Centre, High Street. Reservoirs were inspected and resample was clear.

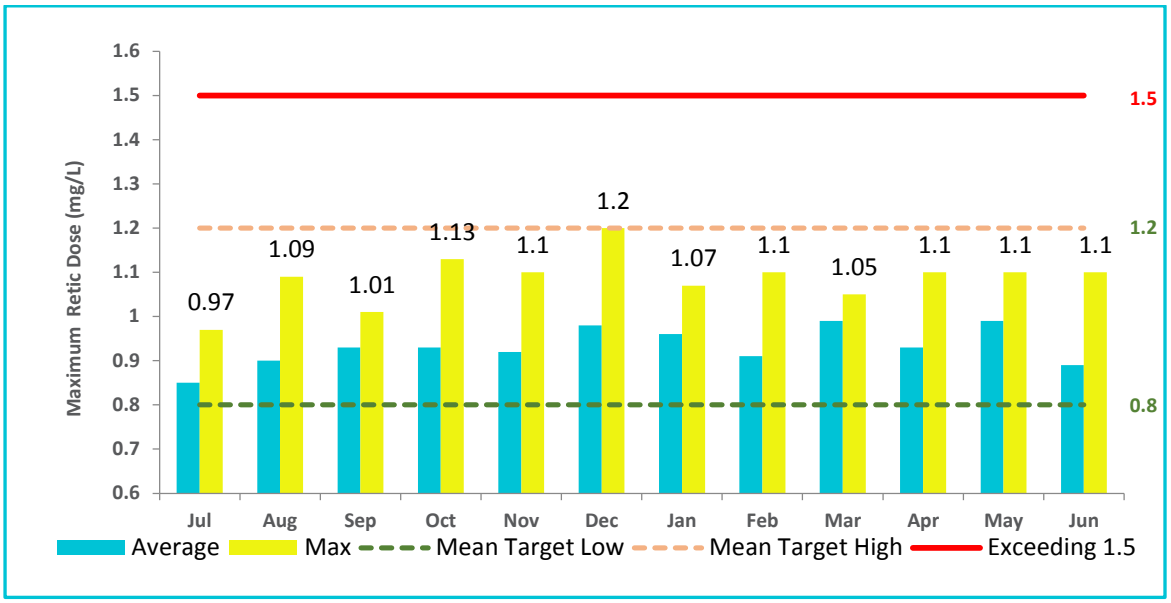


Figure 6.39.4-b Average reticulation fluoride dose by month (2016-17)

Table 6.39.4-a Metals performance 2016-17

Metals – health regulated parameters (2016–17)								
Parameter	**Limit**	**Unit**	**Samples**	**Exceedances**	**Performance %**	**Mean**	**Min.**	**Max.**
Antimony	0.003	mg/L	8	0	100	<0.0005	<0.0005	<0.0005
Arsenic	0.01	mg/L	8	0	100	0.0005	<0.0003	<0.001
Barium	2	mg/L	8	0	100	0.0107	0.0085	0.0136
Cadmium	0.002	mg/L	8	0	100	<0.0001	<0.0001	<0.0001
Chromium	0.05	mg/L	8	0	100	0.0003	<0.0001	<0.001
Copper	2	mg/L	8	0	100	0.0052	0.0006	0.0127
Lead	0.01	mg/L	8	0	100	0.0002	<0.0001	<0.0005
Manganese	0.5	mg/L	8	0	100	0.0093	0.0015	0.02
Mercury	0.001	mg/L	8	0	100	0.00007	<0.00003	0.00018
Molybdenum	0.05	mg/L	8	0	100	0.0002	<0.0001	<0.0005
Nickel	0.02	mg/L	8	0	100	0.0002	<0.0001	0.0005
Selenium	0.01	mg/L	8	0	100	0.0006	<0.0001	<0.002

Table 6.39.4-b Disinfection by product performance 2016-17

Disinfection by products – health regulated parameters (2016–17)								
Parameter	Limit	Unit	Samples	Exceedances	Performance %	Mean	Min.	Max.
Dichloroacetic acid	100	µg/L	8	0	100	6.56	<1	19
Monochloroacetic acid	150	µg/L	8	0	100	<5	<3	<5
Trichloroacetic acid	100	µg/L	8	0	100	10.13	6	17
Total trihalomethanes	250	µg/L	8	0	100	47.88	20	81

6.39.5. Analysis of overall system performance (2016-17)

Table 6.39.5-a General physical performance 2016-17

General physical parameters (2016-17)					
Parameter	Unit	Guideline Value	Mean	Min	Max
Chlorine residual	mg/L	0.1 - <0.8	0.59	0.02	2.10
Colour True	HU	15	<1	<1	2
pH	Units	6.5 – 8.5	7.73	7.02	9.02
Turbidity	NTU	1	0.30	0.06	4.05

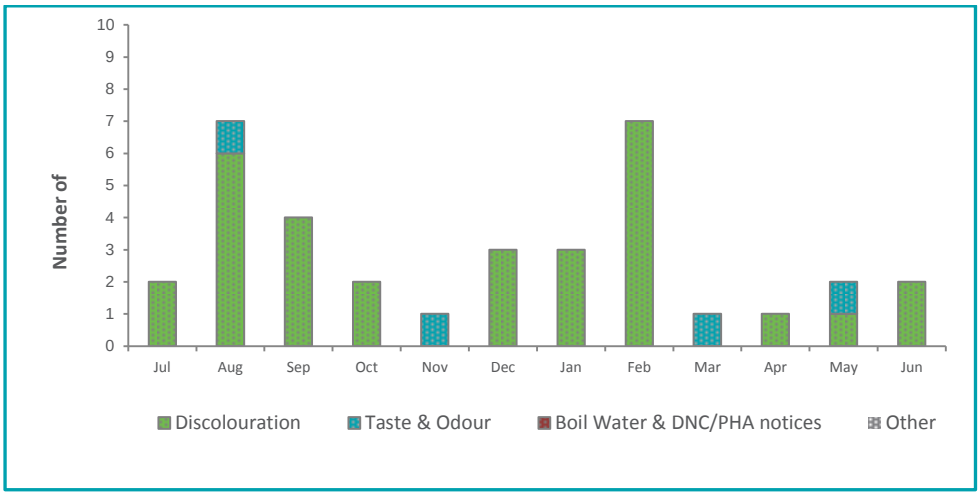


Figure 6.39.5-a Customer complaints by month and type

6.40. Manuka River (Strahan) drinking water system

6.40.1. Summary of system status

Manuka River (Strahan) drinking water system	
System status (as at 30 June 2017)	Potable
Total number of connections	641
Fluoride	Sodium fluoride

Performance overview against health targets (2016-17)

Indicator	Outcome	Compliant	Target	Sampling Events	Non-conformances
Microbiological	99.6%	☑	98.0%	260	1
Fluoride	100.0%	☑	100.0%	104	0
Metals	100.0%	☑	100.0%	20	0
DBPs	100.0%	☑	100.0%	8	0

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

Overall system performance (2016-17)

Indicator	Occurrences	Details
Customer complaints	3	Discoloured water, taste & odour.
Public health warnings issued	0	
System incidents & issues	1	E. coli exceedance.
Catchment and water source issues	0	

Current and future planned infrastructure and operational changes

Project	Description	Progress	Est. Delivery	Est. Spend ($'000)
Manuka River (Strahan) Disinfection Project	Installation of UV disinfection or similar at the Strahan WTP.	Planning	FY18/19	$34.31

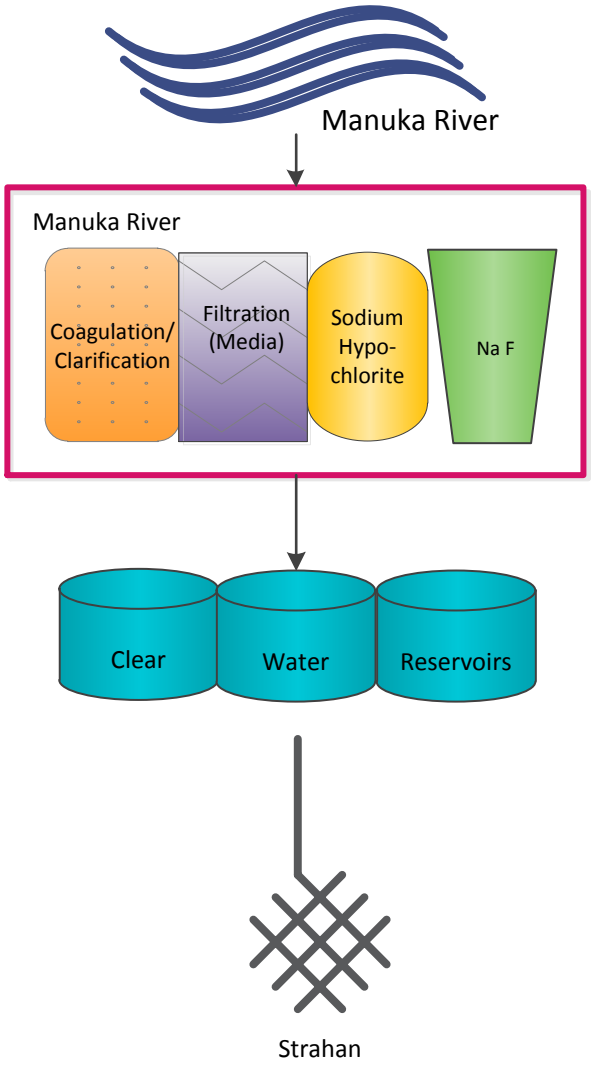


Figure 6.40.1-a Manuka River (Strahan) system schematic

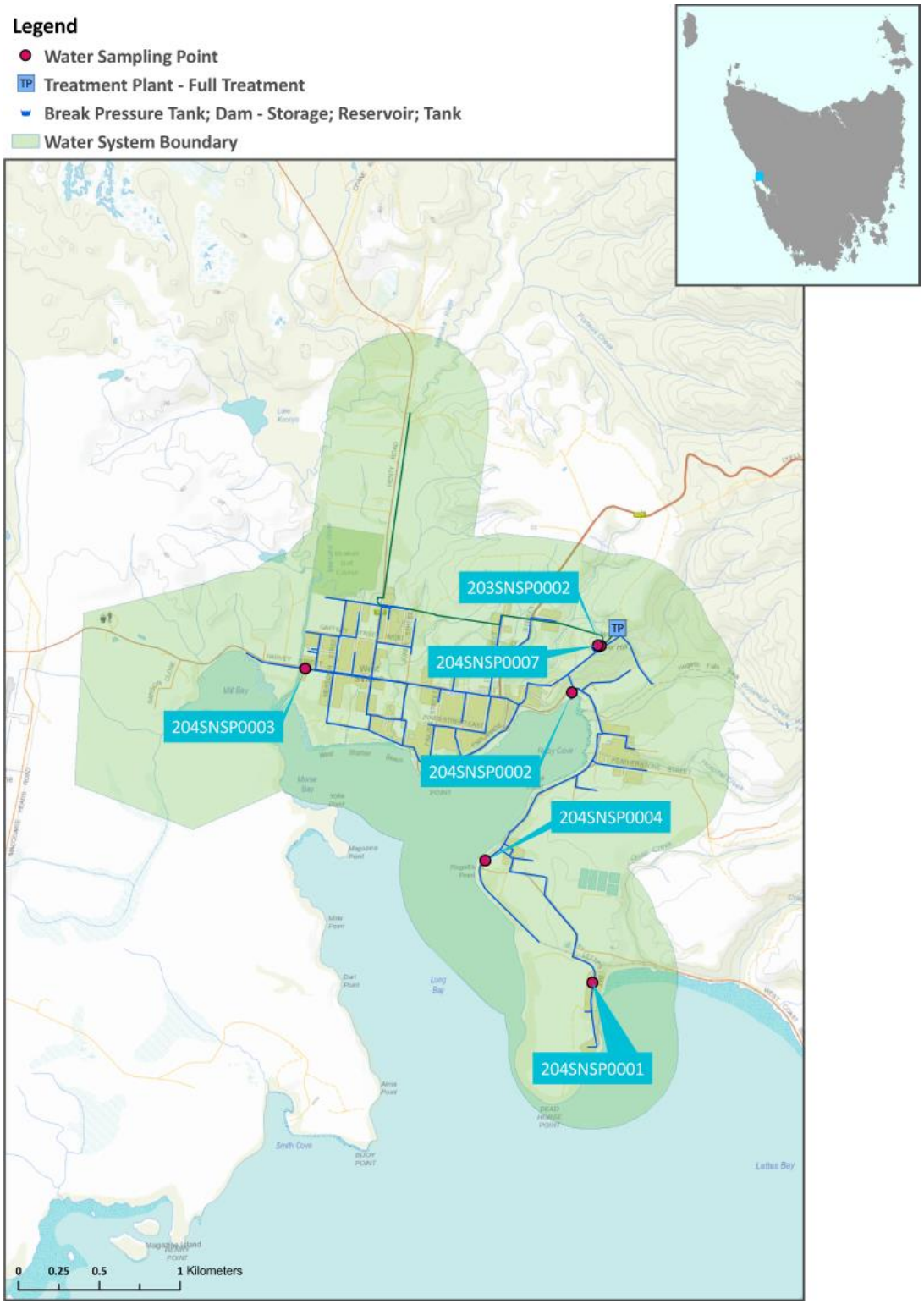


Figure 6.40.1-b Map of Manuka River (Strahan) monitoring system

6.40.2. Summary of Annual Reticulation Compliance (2016–17)

Table 6.40.2-a Compliance sampling program

Planned compliance sampling program (2016-17)								
Site name	**Site Code**	**Micros**	**Metals**	**DBP**	**Fluoride (Field)**	**Fluoride (Lab)**	**Chemical Profile**	**Process Chemicals**
Strahan/Treated Water Storage Sample Point	203SNSP0002	W	n/a	n/a	n/a	n/a	Q	M
Strahan/Letts Bay Sample Point	204SNSP0001	W	n/a	n/a	n/a	n/a	n/a	n/a
Strahan/Esplanade Sample Point	204SNSP0002	W	n/a	n/a	n/a	n/a	n/a	n/a
Strahan/Harvey St Sample Point	204SNSP0003	W	Q	Q	W	M	Q	n/a
Strahan/Regatta Point Sample Point	204SNSP0004	W	Q	Q	W	n/a	n/a	n/a
Strahan/Treated Water Storage Tank 3	204SNSP0007	W	n/a	n/a	n/a	n/a	n/a	n/a
Number Planned Samples		**260**	**8**	**8**	**104**	**12**	**8**	**12**
Number Samples Tested		**260**	**8**	**8**	**104**	**12**	**8**	**12**

6.40.3. Summary of current and historic performance (2012-17)

Table 6.41.3-a Historical health performance overview (5 year comparison)

Historical health performance overview (5 year comparison)					
Indicator	**2012-13**	**2013-14**	**2014-15**	**2015-16**	**2016-17**
Microbiological	100.0%	100.0%	99.6%	99.3%	99.6%
Fluoride	n/a	n/a	100.0%	100.0%	100.0%
Metals	n/a	100.0%	100.0%	100.0%	100.0%
Disinfection by products	n/a	100.0%	100.0%	100.0%	100.0%

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

Table 6.40.3-b Distribution fluoride testing overview (5 year comparison)

Distribution fluoride testing overview (5 year comparison)					
Indicator	**2012-13**	**2013-14**	**2014-15**	**2015-16**	**2016-17**
Exceeding 1.5 mg/L	n/a	n/a	0	0	0
Within target range (%)	n/a	n/a	76.0%	75.0%	96.1%
Mean dose (mg/L)	n/a	n/a	0.83	0.91	0.95

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

6.40.4. Analysis of current health performance (2016-17)

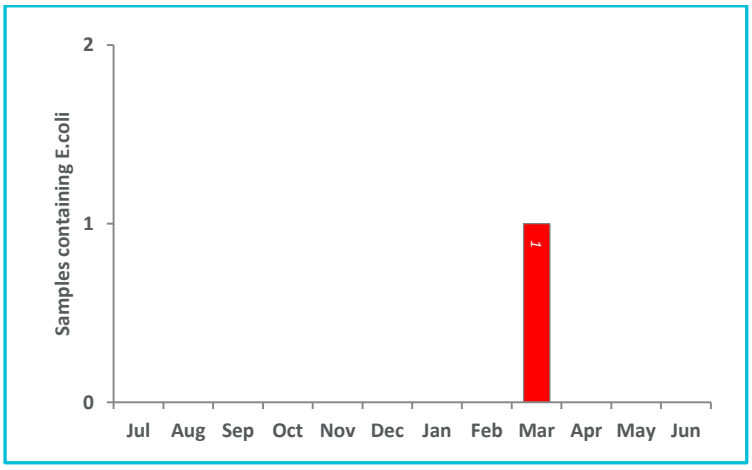


Figure 6.40.4-a Microbiological non-compliances by month (2016-17)

- *E.coli* detection of 1 MPN/100mL on 21/3/2017 at 204SNSP0003 Strahan / Harvey St Sample Point. Incident was declared and site was closely examined for: chlorine residual; filtered water performance; possible weak points; and breakage history. System was flushed and re-sampled 23/03/2017. The investigation did not identify the cause of the failure. The re-sample was clear of contamination.

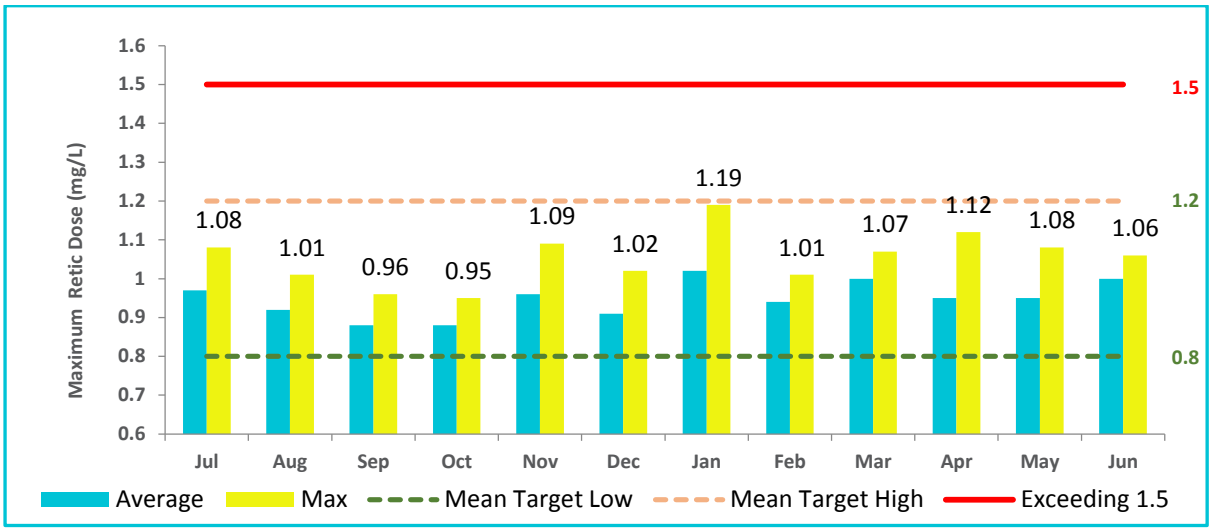


Figure 6.40.4-b Average reticulation fluoride dose by month (2016-17)

Table 6.40.4-a Metals performance 2016-17

Metals – health regulated parameters (2016–17)								
Parameter	**Limit**	**Unit**	**Samples**	**Exceedances**	**Performance %**	**Mean**	**Min.**	**Max.**
Antimony	0.003	mg/L	8	0	100	<0.0005	<0.0005	<0.0005
Arsenic	0.01	mg/L	20	0	100	0.0006	<0.0003	<0.001
Barium	2	mg/L	20	0	100	0.0065	0.0054	0.008
Cadmium	0.002	mg/L	20	0	100	<0.0001	<0.0001	<0.0001
Chromium	0.05	mg/L	20	0	100	0.0005	<0.0001	<0.001
Copper	2	mg/L	8	0	100	0.0122	0.003	0.061
Lead	0.01	mg/L	20	0	100	0.0004	<0.0001	0.0014
Manganese	0.5	mg/L	20	0	100	0.0049	0.0008	0.0101
Mercury	0.001	mg/L	20	0	100	0.00008	<0.00003	0.00022
Molybdenum	0.05	mg/L	8	0	100	0.0003	<0.0001	<0.0005

Nickel	0.02	mg/L	20	0	100	0.0012	0.0003	0.0021
Selenium	0.01	mg/L	20	0	100	0.001	<0.0001	<0.002

Table 6.40.4-b Disinfection by product performance 2016-17

Disinfection by products – health regulated parameters (2016–17)								
Parameter	**Limit**	**Unit**	**Samples**	**Exceedances**	**Performance %**	**Mean**	**Min.**	**Max.**
Dichloroacetic acid	100	µg/L	8	0	100	17.63	3	31
Monochloroacetic acid	150	µg/L	8	0	100	<5	<3	<5
Trichloroacetic acid	100	µg/L	8	0	100	28.38	10	41
Total trihalomethanes	250	µg/L	8	0	100	78.75	50	112
TOTAL			**8**	**0**	**100**			

6.40.5. Analysis of overall system performance (2016-17)

Table 6.40.5-a General physical performance 2016-17

General physical parameters (2016-17)					
Parameter	**Unit**	**Guideline Value**	**Mean**	**Min**	**Max**
Chlorine residual	mg/L	0.1 - <0.8	0.65	0.01	1.44
Colour True	HU	15	1.25	1	2
pH	Units	6.5 – 8.5	7.27	6.29	7.77
Turbidity	NTU	1	0.30	0.06	4.05

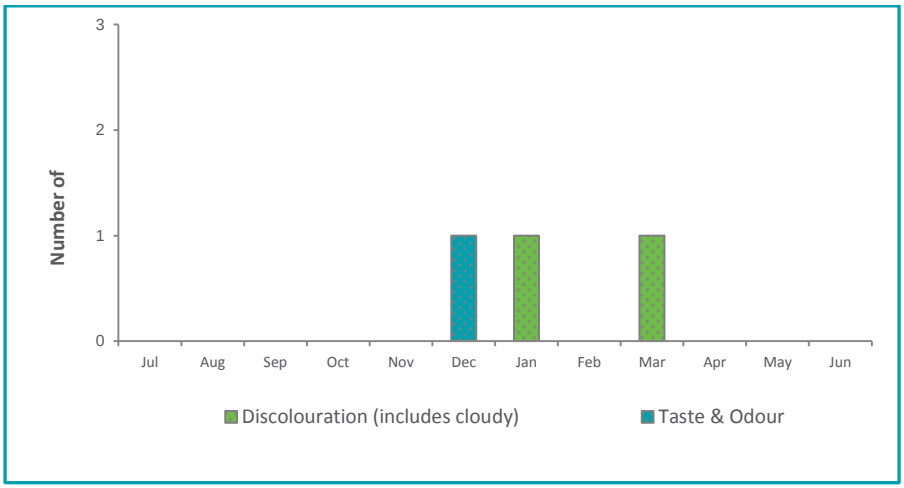


Figure 6.40.5-a Customer complaints by month and type

6.41. Mathinna drinking water system

6.41.1. Summary of system status

Mathinna drinking water system	
System status (as at 30 June 2017)	BWA
Total number of connections	153
Fluoride	n/a

Performance overview against health targets (2016-17)

Indicator	Outcome	Compliant	Target	Sampling Events	Non-conformances
Microbiological	16.7%	☒	98.0%	12	10
Fluoride	n/a	n/a	n/a	n/a	n/a
Metals	100.0%	☑	100.0%	4	0
DBPs	n/a	n/a	n/a	n/a	n/a

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

Overall system performance (2016-17)

Indicator	Occurrences	Details
Customer complaints	0	
Public health warnings issued	0	
System incidents & issues	10	E. coli exceedances.
Catchment and water source issues	0	

Current and future planned infrastructure and operational changes

Project	Description	Progress	Est. Delivery	Est. Spend ($'000)
Mathinna water supply system	Treated Water supply to the community.	Tender	FY17/18	$3,050.33

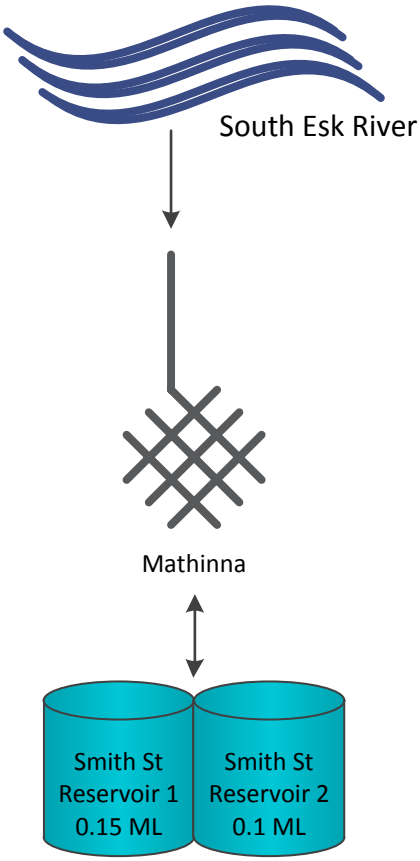


Figure 6.41.1-a Mathinna system schematic

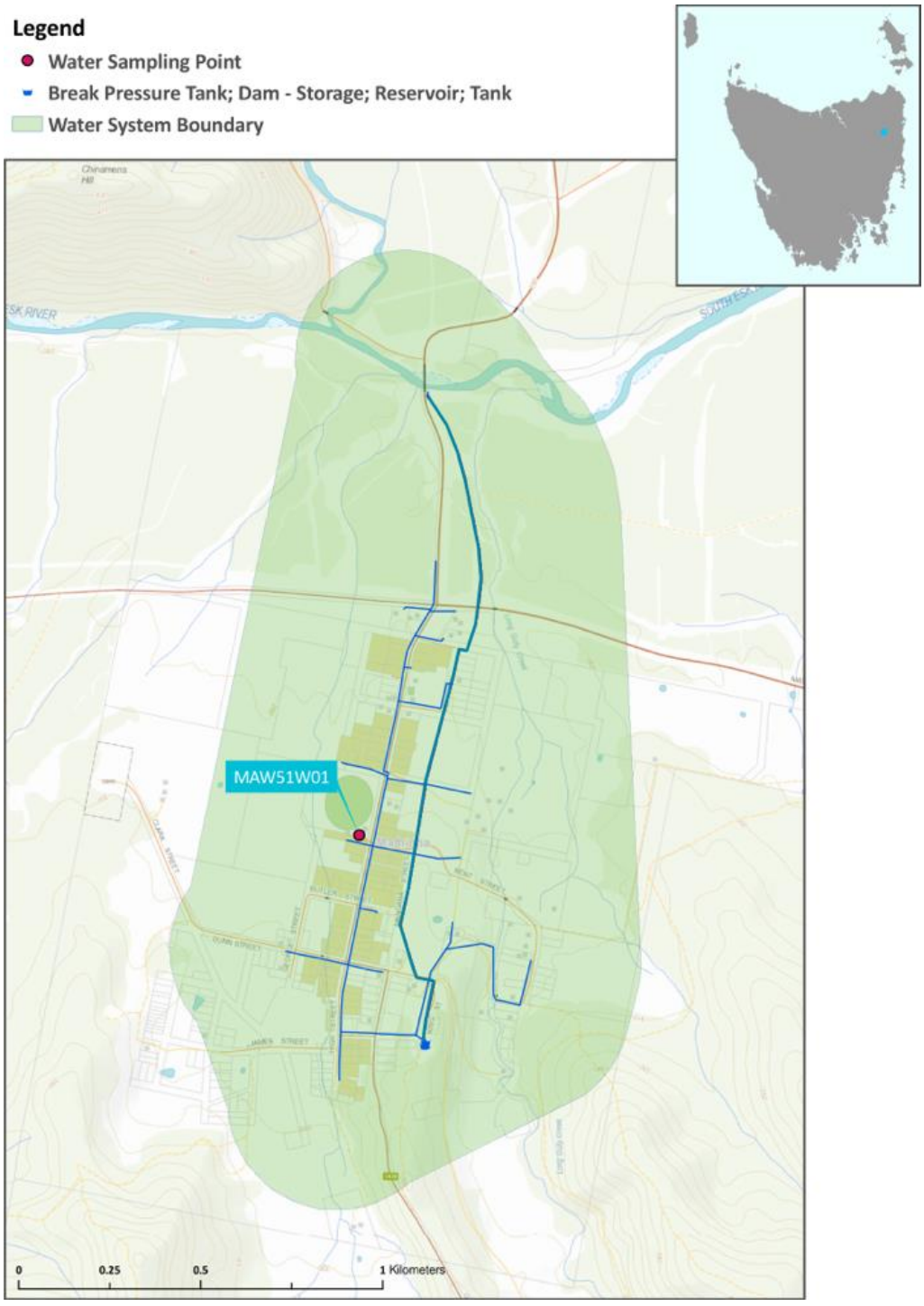


Figure 6.41.1-b Map of Mathinna monitoring system

6.41.2. Summary of Annual Reticulation Compliance (2016–17)

Table 6.41.2-a Compliance sampling program

Planned compliance sampling program (2016-17)								
Site name	Site Code	Micros	Metals	DBP	Fluoride (Field)	Fluoride (Lab)	Chemical Profile	Process Chemicals
Mathinna/Rec Ground Recreation Ground	MAW51W01	M	Q	n/a	n/a	n/a	Q	n/a
Number Planned Samples		**12**	**4**	**0**	**0**	**0**	**4**	**0**
Number Samples Tested		**12**	**4**	**0**	**0**	**0**	**4**	**0**

6.41.3. Summary of current and historic performance (2012-17)

Table 6.41.3-a Historical health performance overview (5 year comparison)

Historical health performance overview (5 year comparison)					
Indicator	2012-13	2013-14	2014-15	2015-16	2016-17
Microbiological	38.0%	21.0%	17.0%	33.0%	16.7%
Fluoride	n/a	n/a	n/a	n/a	n/a
Metals	100.0%	100.0%	100.0%	100.0%	100.0%
Disinfection by products	n/a	n/a	n/a	n/a	n/a

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

6.41.4. Analysis of current health performance (2016-17)

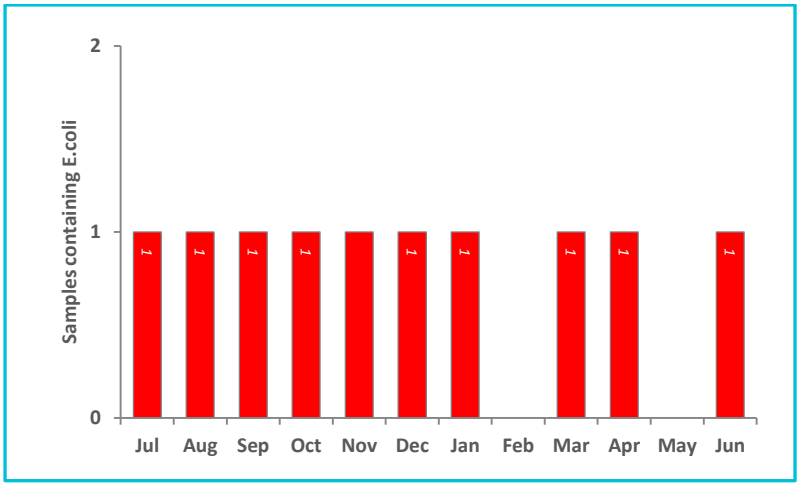


Figure 6.41.4-a Microbiological non-compliances by month (2016-17)

Poor microbiological performance can be attributed to a lack of barriers and the susceptibility to changes in quality from the South Esk River.

The risk to public health is mitigated through the communication of the Permanent BWA to customers.

Table 6.41.4-a Metals performance 2016-17

Metals – health regulated parameters (2016–17)								
Parameter	Limit	Unit	Samples	Exceedances	Performance %	Mean	Min.	Max.
Antimony	0.003	mg/L	4	0	100	<0.0005	<0.0005	<0.0005
Arsenic	0.01	mg/L	4	0	100	0.0005	<0.0003	<0.001
Barium	2	mg/L	4	0	100	0.0045	0.004	0.005
Cadmium	0.002	mg/L	4	0	100	0.0001	<0.0001	0.0002
Chromium	0.05	mg/L	4	0	100	0.0004	0.0001	<0.001
Copper	2	mg/L	4	0	100	0.0471	0.0088	0.082
Lead	0.01	mg/L	4	0	100	0.0007	0.0003	0.0013
Manganese	0.5	mg/L	4	0	100	0.0035	0.0011	0.009
Mercury	0.001	mg/L	4	0	100	0.00004	<0.00003	<0.00005
Molybdenum	0.05	mg/L	4	0	100	0.0002	<0.0001	<0.0005
Nickel	0.02	mg/L	4	0	100	0.0003	<0.0001	<0.0005
Selenium	0.01	mg/L	4	0	100	0.0006	<0.0001	<0.002

6.41.5. Analysis of overall system performance (2016-17)

Table 6.41.5-a General physical performance 2016-17

General physical parameters (2016-17)					
Parameter	Unit	Guideline Value	Mean	Min	Max
Chlorine residual	mg/L	0.1 - <0.8	n/a	n/a	n/a
Colour True	HU	15	28.5	17	41
pH	Units	6.5 – 8.5	7.57	7.18	8.16
Turbidity	NTU	1	4.43	0.49	26.3

6.42. Maydena drinking water system

6.42.1. Summary of system status

Maydena drinking water system	
System status (as at 30 June 2017)	Potable
Total number of connections	157
Fluoride	n/a

Performance overview against health targets (2016-17)

Indicator	Outcome	Compliant	Target	Sampling Events	Non-conformances
Microbiological	100.0%	☑	98.0%	52	0
Fluoride	n/a	n/a	n/a	n/a	n/a
Metals	100.0%	☑	100.0%	4	0
DBPs	100.0%	☑	100.0%	12	0

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

Overall system performance (2016-17)

Indicator	Occurrences	Details
Customer complaints	1	Taste & odour
Public health warnings issued	0	
System incidents & issues	0	
Catchment and water source issues	0	

Current and future planned infrastructure and operational changes

Project	Description	Progress	Est. Delivery	Est. Spend
n/a	n/a	n/a	n/a	n/a

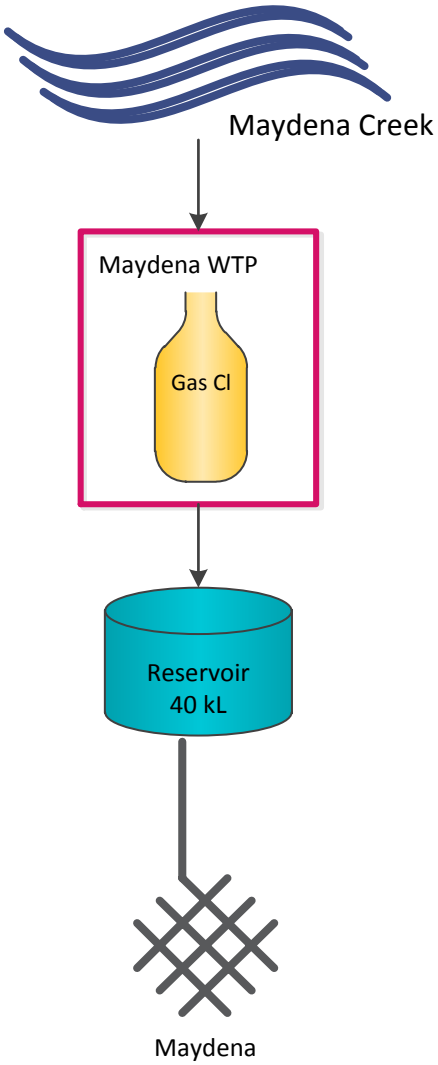


Figure 6.42.1-a Maydena system schematic

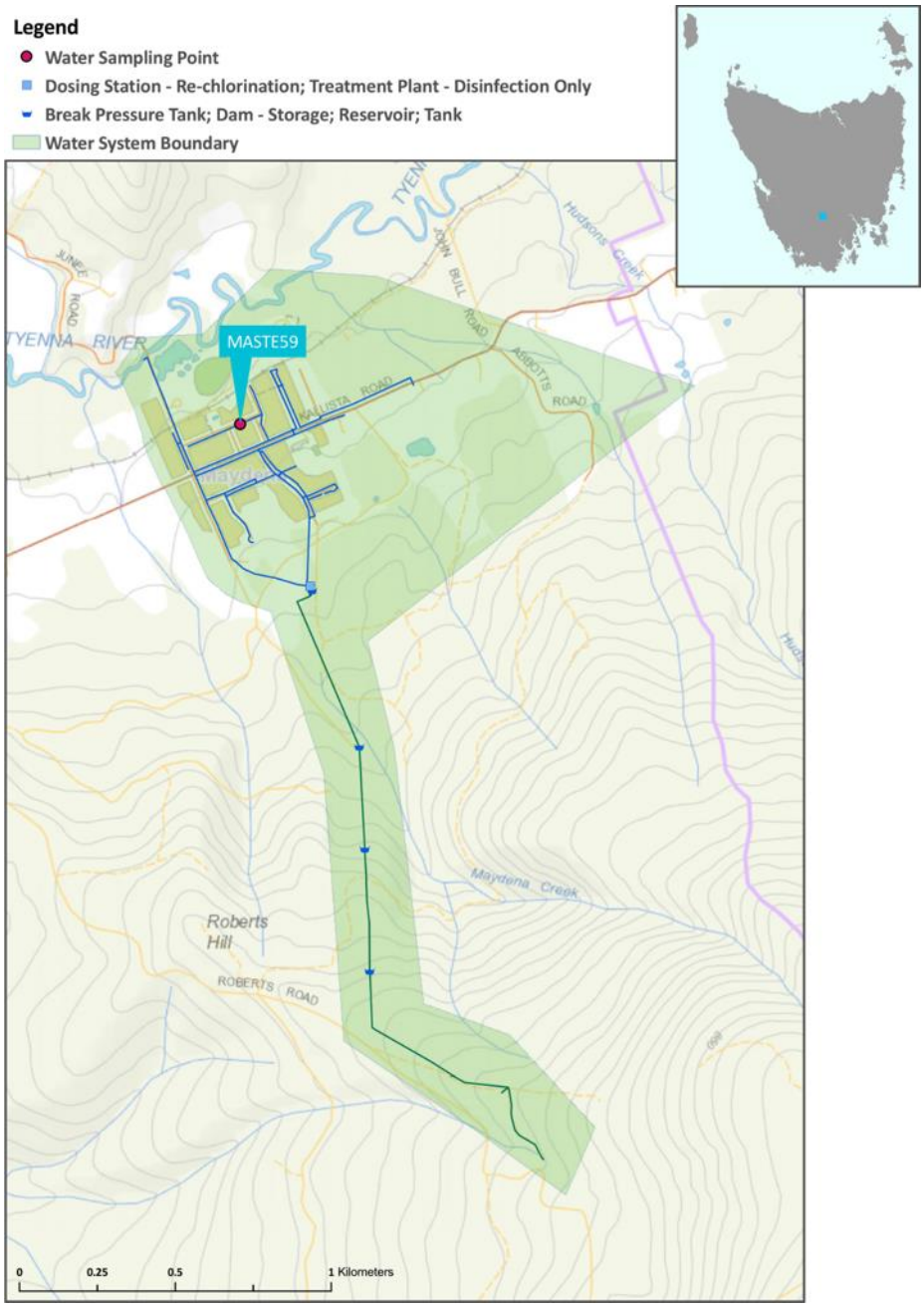


Figure 6.42.1-b Map of Maydena monitoring system

6.42.2. Summary of Annual Reticulation Compliance (2016–17)

Table 6.42.2-a Compliance sampling program

Planned compliance sampling program (2016-17)								
Site name	Site Code	Micros	Metals	DBP	Fluoride (Field)	Fluoride (Lab)	Chemical Profile	Process Chemicals
Maydena/Community Hall Sample Tap	MASTE59	W	Q	M	n/a	n/a	Q	n/a
Number Planned Samples		**52**	**4**	**12**	**0**	**0**	**4**	**0**
Number Samples Tested		**52**	**4**	**12**	**0**	**0**	**4**	**0**

6.42.3. Summary of current and historic performance (2012-17)

Table 6.42.3-a Historical health performance overview (5 year comparison)

Historical health performance overview (5 year comparison)					
Indicator	**2012-13**	**2013-14**	**2014-15**	**2015-16**	**2016-17**
Microbiological	100.0%	98.0%	100.0%	98.0%	100.0%
Fluoride	n/a	n/a	n/a	n/a	n/a
Metals	100.0%	100.0%	100.0%	100.0%	100.0%
Disinfection by products	100.0%	100.0%	100.0%	100.0%	100.0%

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

6.42.4. Analysis of current health performance (2016-17)

Figure 6.42.4-a Microbiological non-compliances by month (2016-17)

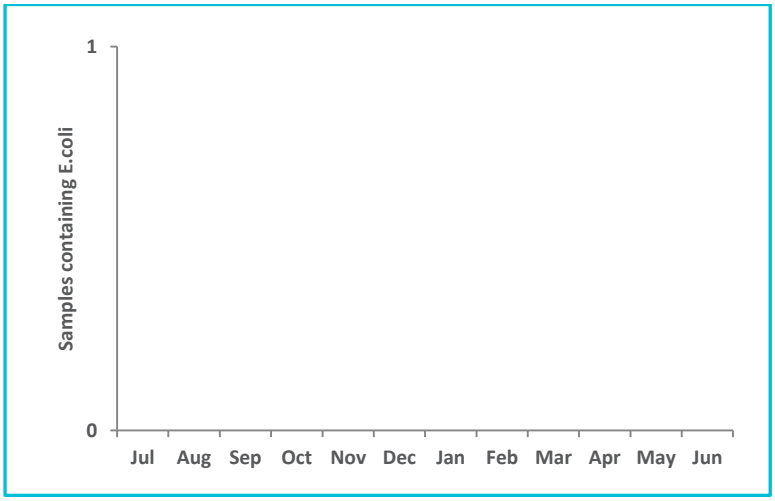


Table 6.42.4-a Metals performance 2016-17

Metals – health regulated parameters (2016–17)								
Parameter	Limit	Unit	Samples	Exceedances	Performance %	Mean	Min.	Max.
Antimony	0.003	mg/L	4	0	100	<0.0005	<0.0005	<0.0005
Arsenic	0.01	mg/L	4	0	100	0.0005	<0.0003	<0.001
Barium	2	mg/L	4	0	100	0.002	0.0017	0.0023
Cadmium	0.002	mg/L	4	0	100	<0.0001	<0.0001	<0.0001
Chromium	0.05	mg/L	4	0	100	0.0008	0.0007	<0.001
Copper	2	mg/L	4	0	100	0.003	0.0007	0.005
Lead	0.01	mg/L	4	0	100	0.0003	0.0002	<0.0005
Manganese	0.5	mg/L	4	0	100	0.0033	0.0027	0.0039
Mercury	0.001	mg/L	4	0	100	0.00008	<0.00003	0.0002
Molybdenum	0.05	mg/L	4	0	100	0.0002	<0.0001	<0.0005
Nickel	0.02	mg/L	4	0	100	0.0002	<0.0001	<0.0005
Selenium	0.01	mg/L	4	0	100	0.0006	<0.0001	<0.002

Table 6.42.4-b Disinfection by product performance 2016-17

Disinfection by products – health regulated parameters (2016–17)								
Parameter	Limit	Unit	Samples	Exceedances	Performance %	Mean	Min.	Max.
Dichloroacetic acid	100	µg/L	12	0	100	18.42	9	35
Monochloroacetic acid	150	µg/L	12	0	100	<5	<3	<5
Trichloroacetic acid	100	µg/L	12	0	100	27.33	10	56
Total trihalomethanes	250	µg/L	12	0	100	40.08	23	63

6.42.5. Analysis of overall system performance (2016-17)

Table 6.42.5-a General physical performance 2016-17

General physical parameters (2016-17)					
Parameter	Unit	Guideline Value	Mean	Min	Max
Chlorine residual	mg/L	0.1 - <0.8	0.32	0.01	0.79
Colour True	HU	15	4	3	5
pH	Units	6.5 – 8.5	7.22	6.23	7.63
Turbidity	NTU	1	0.86	0.28	6.25

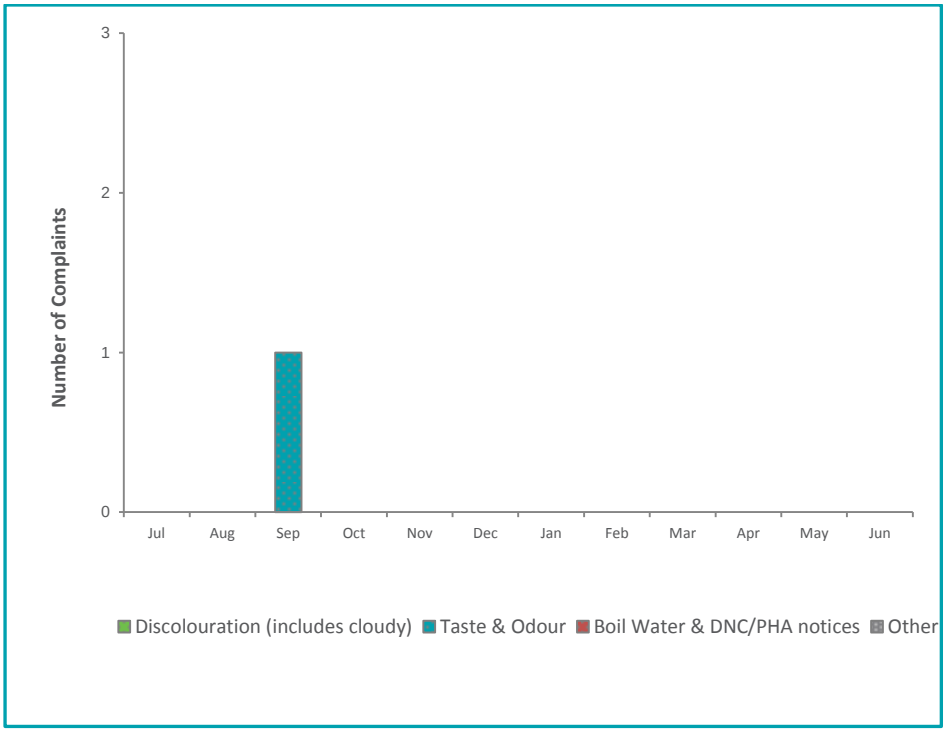


Figure 6.42.5-a Customer complaints by month and type

6.43. Mole Creek drinking water system

6.43.1. Summary of system status

Mole Creek drinking water system	
System status (as at 30 June 2017)	BWA
Total number of connections	263
Fluoride	n/a

Performance overview against health targets (2016-17)

Indicator	Outcome	Compliant	Target	Sampling Events	Non-conformances
Microbiological	50.0%	☒	98.0%	12	6
Fluoride	n/a	n/a	n/a	n/a	n/a
Metals	100.0	☑	100.0%	4	0
DBPs	n/a	n/a	n/a	n/a	n/a

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

Overall system performance (2016-17)

Indicator	Occurrences	Details
Customer complaints	3	Discoloured water, boil water & DNC alert.
Public health warnings issued	0	Long term BWA
System incidents & issues	6	E. coli exceedances.
Catchment and water source issues	0	

Current and future planned infrastructure and operational changes

Project	Description	Progress	Est. Delivery	Est. Spend
Small Towns Project	New pipeline and Mole Creek WTP	Complete	July 2017	

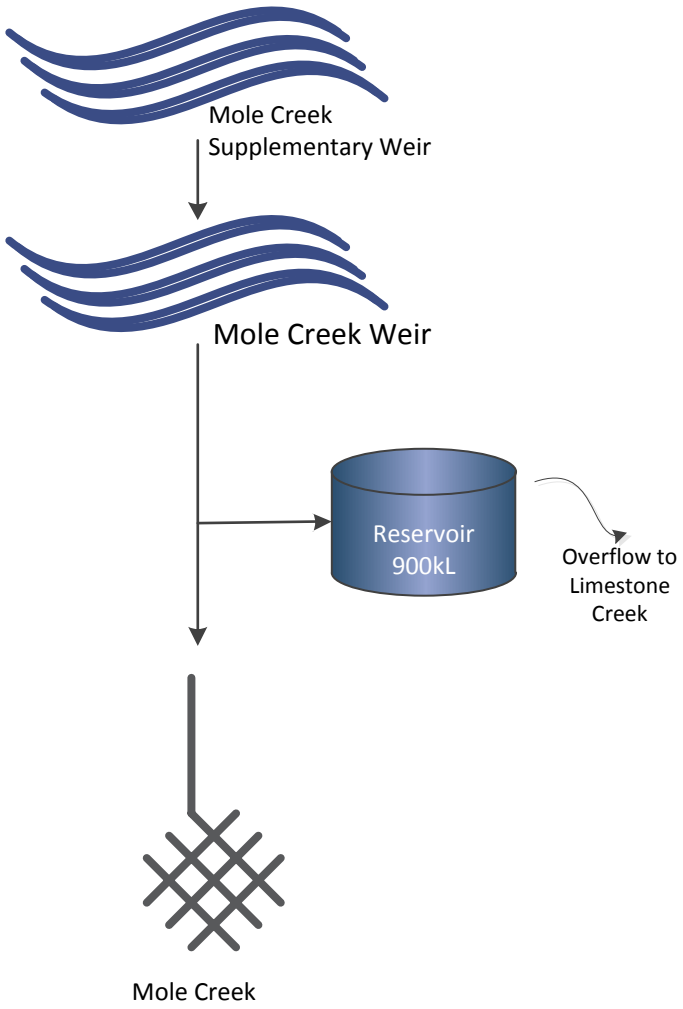


Figure 6.43.1-a Mole Creek system schematic

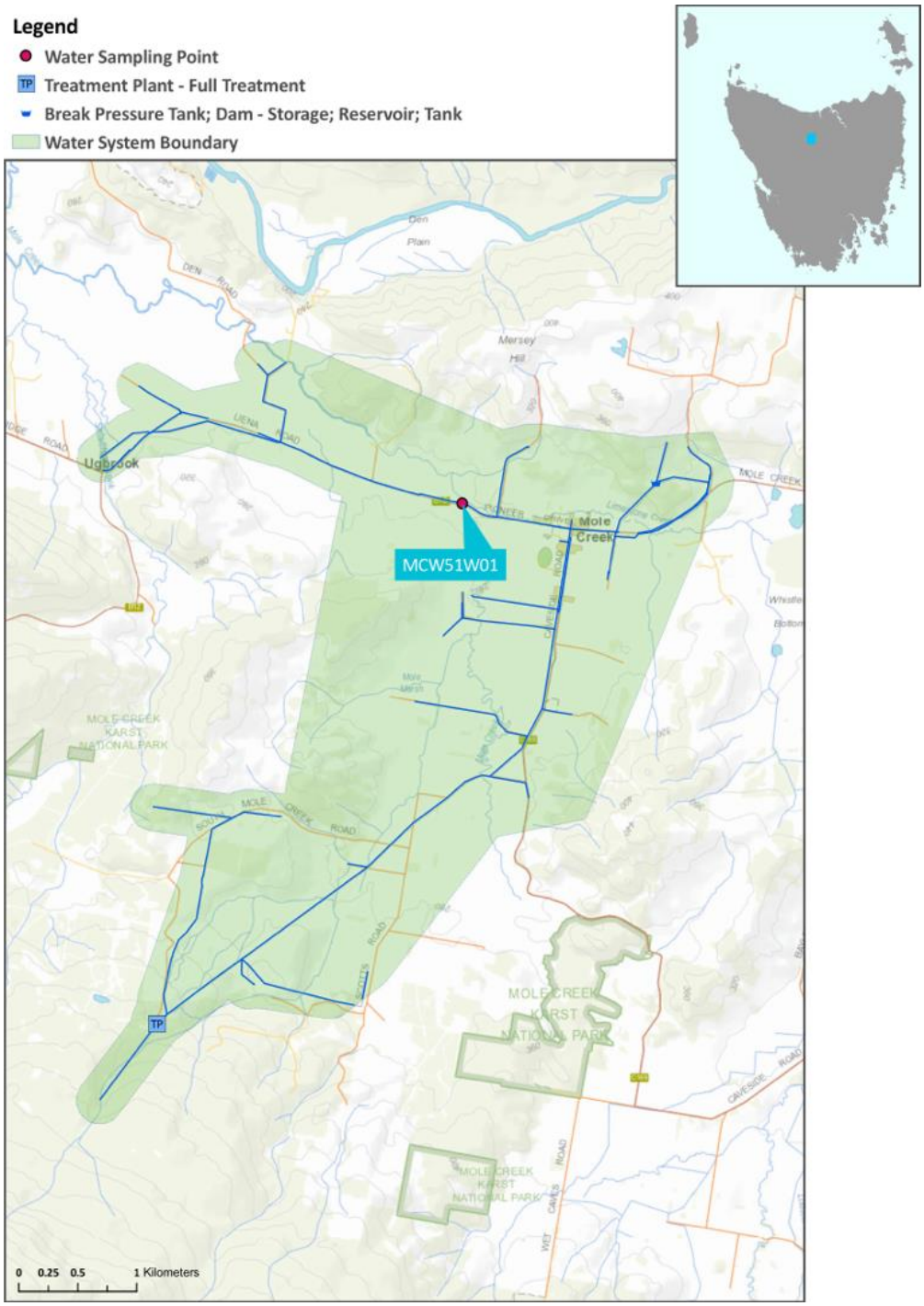


Figure 6.43.1-b Map of Mole Creek monitoring system

6.43.2. Summary of Annual Reticulation Compliance (2016–17)

Table 6.43.2-a Compliance sampling program

Planned compliance sampling program (2016-17)								
Site name	Site Code	Micros	Metals	DBP	Fluoride (Field)	Fluoride (Lab)	Chemical Profile	Process Chemicals
Mole Creek/Pioneer Drive	MCW51W01	M	Q	n/a	n/a	n/a	Q	n/a
Number Planned Samples		**12**	**4**	**0**	**0**	**0**	**4**	**0**
Number Samples Tested		**12**	**4**	**0**	**0**	**0**	**4**	**0**

6.43.3. Summary of current and historic performance (2012-17)

Table 6.43.3-a Historical health performance overview (5 year comparison)

Historical health performance overview (5 year comparison)					
Indicator	2012-13	2013-14	2014-15	2015-16	2016-17
Microbiological	21.0%	10.0%	7.0%	17.4%	50.0%
Fluoride	n/a	n/a	n/a	n/a	n/a
Metals	100.0%	100.0%	100.0%	100.0%	100.0%
Disinfection by products	n/a	n/a	n/a	n/a	n/a

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

6.43.4. Analysis of current health performance (2016-17)

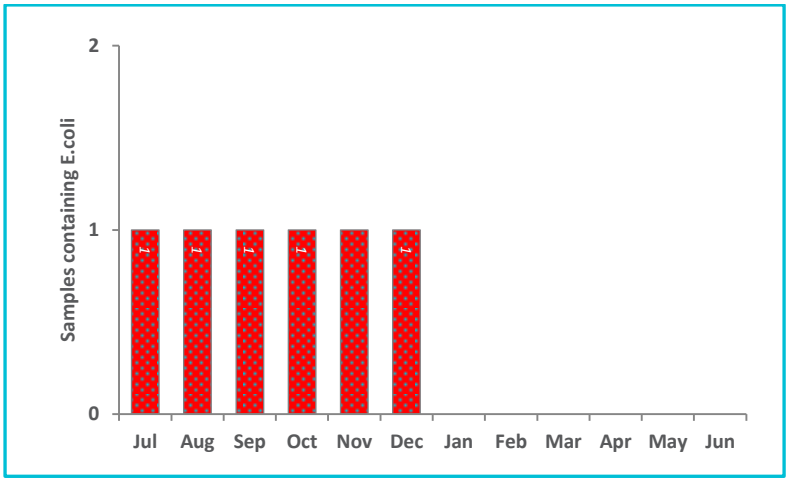


Figure 6.43.4-a Microbiological non-compliances by month (2016-17)

- Poor microbiological performance can be attributed to a lack of barriers and the susceptibility to changes in quality from Mole Creek.
- The risk to public health is mitigated through the communication of the Permanent BWA to customers.
- Water was supplied from the new Mole Creek WTP from October 2016. The boil water alert was expected to be removed by August 2017.

Table 6.43.4-a Metals performance 2016-17

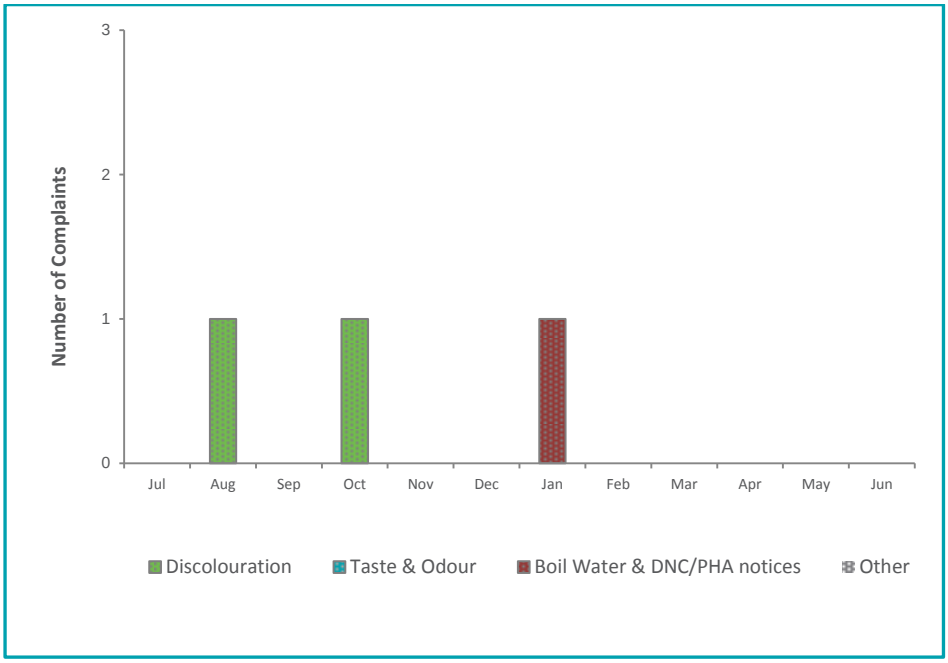
Metals – health regulated parameters (2016–17)								
Parameter	Limit	Unit	Samples	Exceedances	Performance %	Mean	Min.	Max.
Antimony	0.003	mg/L	4	0	100	<0.0005	<0.0005	<0.0005
Arsenic	0.01	mg/L	4	0	100	0.0005	<0.0003	<0.001
Barium	2	mg/L	4	0	100	0.0036	0.0031	0.004
Cadmium	0.002	mg/L	4	0	100	0.0002	<0.0001	0.0005
Chromium	0.05	mg/L	4	0	100	0.0004	<0.0001	<0.001
Copper	2	mg/L	4	0	100	0.0008	<0.0001	0.0011
Lead	0.01	mg/L	4	0	100	0.0002	<0.0001	<0.0005
Manganese	0.5	mg/L	4	0	100	0.0023	0.0004	0.004
Mercury	0.001	mg/L	4	0	100	0.00006	0.00004	0.00007
Molybdenum	0.05	mg/L	4	0	100	0.0002	<0.0001	<0.0005
Nickel	0.02	mg/L	4	0	100	0.0002	<0.0001	<0.0005
Selenium	0.01	mg/L	4	0	100	0.0006	<0.0001	<0.002

6.43.5. Analysis of overall system performance (2016-17)

Table 6.43.5-a General physical performance 2016-17

General physical parameters (2016-17)					
Parameter	Unit	Guideline Value	Mean	Min	Max
Chlorine residual	mg/L	0.1 - <0.8	0.45	0.05	0.79
Colour True	HU	15	3.88	<1	11
pH	Units	6.5 – 8.5	7.51	7.10	7.71
Turbidity	NTU	1	2.17	0.13	13.1

Figure 6.43.5-a Customer complaints by month and type



6.44. Mountain River drinking water system

6.44.1. Summary of system status

Mountain River drinking water system	
System status (as at 30 June 2017)	BWA
Total number of connections	2
Fluoride	n/a

Performance overview against health targets (2016-17)

Indicator	Outcome	Compliant	Target	Sampling Events	Non-conformances
Microbiological	41.7%	☒	98.0%	12	7
Fluoride	n/a	n/a	n/a	n/a	n/a
Metals	100.0%	☑	100.0%	4	0
DBPs	n/a	n/a	n/a	n/a	n/a

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

Overall system performance (2016-17)

Indicator	Occurrences	Details
Customer complaints	0	
Public health warnings issued	0	
System incidents & issues	7	E. coli exceedances.
Catchment and water source issues	0	

Current and future planned infrastructure and operational changes

Project	Description	Progress	Est. Delivery	Est. Spend ($'000)
Mountain River Water Supply System	Treated water supply to the Mountain River system	Tender	FY17/18	$111.32

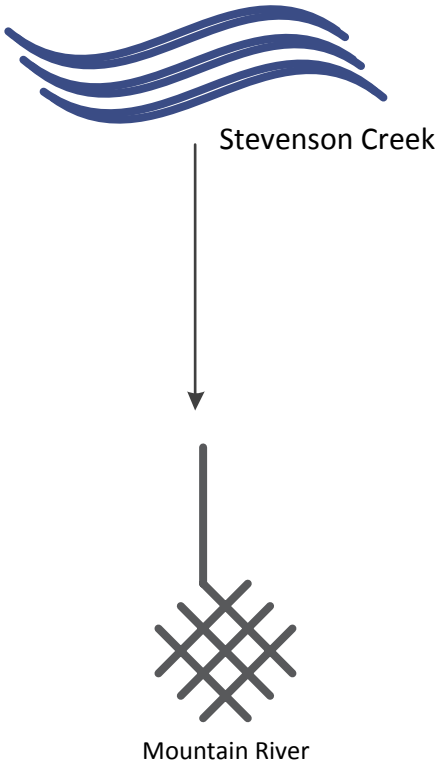


Figure 6.44.1-a Mountain River system schematic

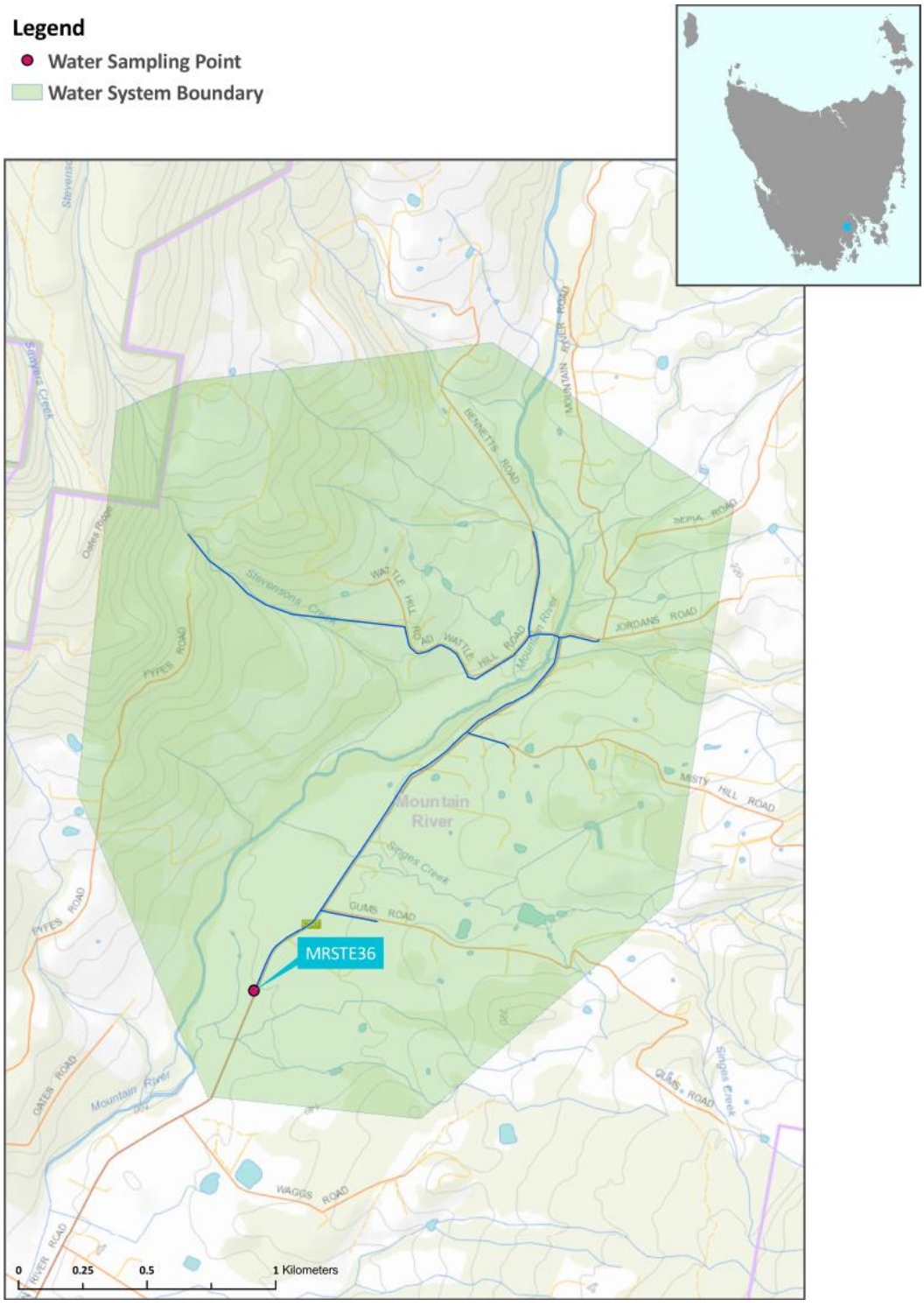


Figure 6.44.1-b Map of Mountain River monitoring system

6.44.2. Summary of Annual Reticulation Compliance (2016–17)

Table 6.44.2-a Compliance sampling program

Planned compliance sampling program (2016-17)								
Site name	Site Code	Micros	Metals	DBP	Fluoride (Field)	Fluoride (Lab)	Chemical Profile	Process Chemicals
Mountain River/431 Mountain River Rd, Sample tap	MRSTE36	M	Q	n/a	n/a	n/a	Q	n/a
Number Planned Samples		**12**	**4**	**0**	**0**	**0**	**4**	**0**
Number Samples Tested		**12**	**4**	**0**	**0**	**0**	**4**	**0**

6.44.3. Summary of current and historic performance (2012-17)

Table 6.44.3-a Historical health performance overview (5 year comparison)

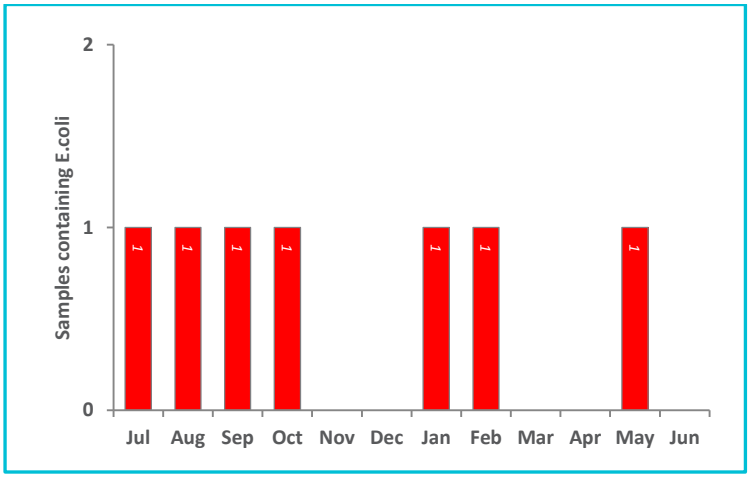
Historical health performance overview (5 year comparison)					
Indicator	2012-13	2013-14	2014-15	2015-16	2016-17
Microbiological	33.0%	8.3%	42.0%	23.4%	41.7%
Fluoride	n/a	n/a	n/a	n/a	n/a
Metals	100.0%	100.0%	100.0%	100.0%	100.0%
Disinfection by products	n/a	n/a	n/a	n/a	n/a

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

6.44.4. Analysis of current health performance (2016-17)

Figure 6.44.4-a Microbiological non-compliances by month (2016-17)



Poor microbiological performance can be attributed to a lack of barriers and the susceptibility to changes in quality from the Stevenson Creek.

The risk to public health is mitigated through the communication of the Permanent BWA to customers.

Table 6.44.4-a Metals performance 2016-17

Metals – health regulated parameters (2016–17)								
Parameter	Limit	Unit	Samples	Exceedances	Performance %	Mean	Min.	Max.
Antimony	0.003	mg/L	4	0	100	<0.0005	<0.0005	<0.0005
Arsenic	0.01	mg/L	4	0	100	0.0005	<0.0003	<0.001
Barium	2	mg/L	4	0	100	0.0069	0.0057	0.0081
Cadmium	0.002	mg/L	4	0	100	0.0001	<0.0001	0.0001
Chromium	0.05	mg/L	4	0	100	0.0005	0.0002	<0.001
Copper	2	mg/L	4	0	100	0.0024	0.0011	0.0036
Lead	0.01	mg/L	4	0	100	0.0003	0.0002	<0.0005
Manganese	0.5	mg/L	4	0	100	0.0085	0.0049	0.0124

Mercury	0.001	mg/L	4	0	100	0.00007	<0.00003	0.00012
Molybdenum	0.05	mg/L	4	0	100	0.0002	<0.0001	<0.0005
Nickel	0.02	mg/L	4	0	100	0.0003	<0.0001	0.0006
Selenium	0.01	mg/L	4	0	100	0.0006	<0.0001	<0.002

6.44.5. Analysis of overall system performance (2016-17)

Table 6.45.5-a General physical performance 2016-17

General physical parameters (2016-17)					
Parameter	**Unit**	**Guideline Value**	**Mean**	**Min**	**Max**
Chlorine residual	mg/L	0.1 - <0.8	n/a	n/a	n/a
Colour True	HU	15	19	16	22
pH	Units	6.5 – 8.5	6.98	5.42	7.75
Turbidity	NTU	1	6.59	1.82	20.9

6.45. North Esk drinking water system

6.45.1. Summary of system status

North Esk drinking water system	
System status (as at 30 June 2017)	Potable
Total number of connections	16632
Fluoride	Fluorosilicic acid

Performance overview against health targets (2016-17)

Indicator	Outcome	Compliant	Target	Sampling Events	Non-conformances
Microbiological	100.0%	☑	98.0%	660	0
Fluoride	100.0%	☑	100.0%	104	0
Metals	100.0%	☑	100.0%	4	0
DBPs	100.0%	☑	100.0%	4	0

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

Overall system performance (2016-17)

Indicator	Occurrences	Details
Customer complaints	41	Discoloured water, taste & odour, other (illness from water).
Public health warnings issued	0	
System incidents & issues	0	
Catchment and water source issues	0	

Current and future planned infrastructure and operational changes

Project	Description	Progress	Est. Delivery	Est. Spend ($'000)
North Esk Disinfection Project	Improved disinfection to the system (potentially UV).	Planning	FY18/19	$205.38

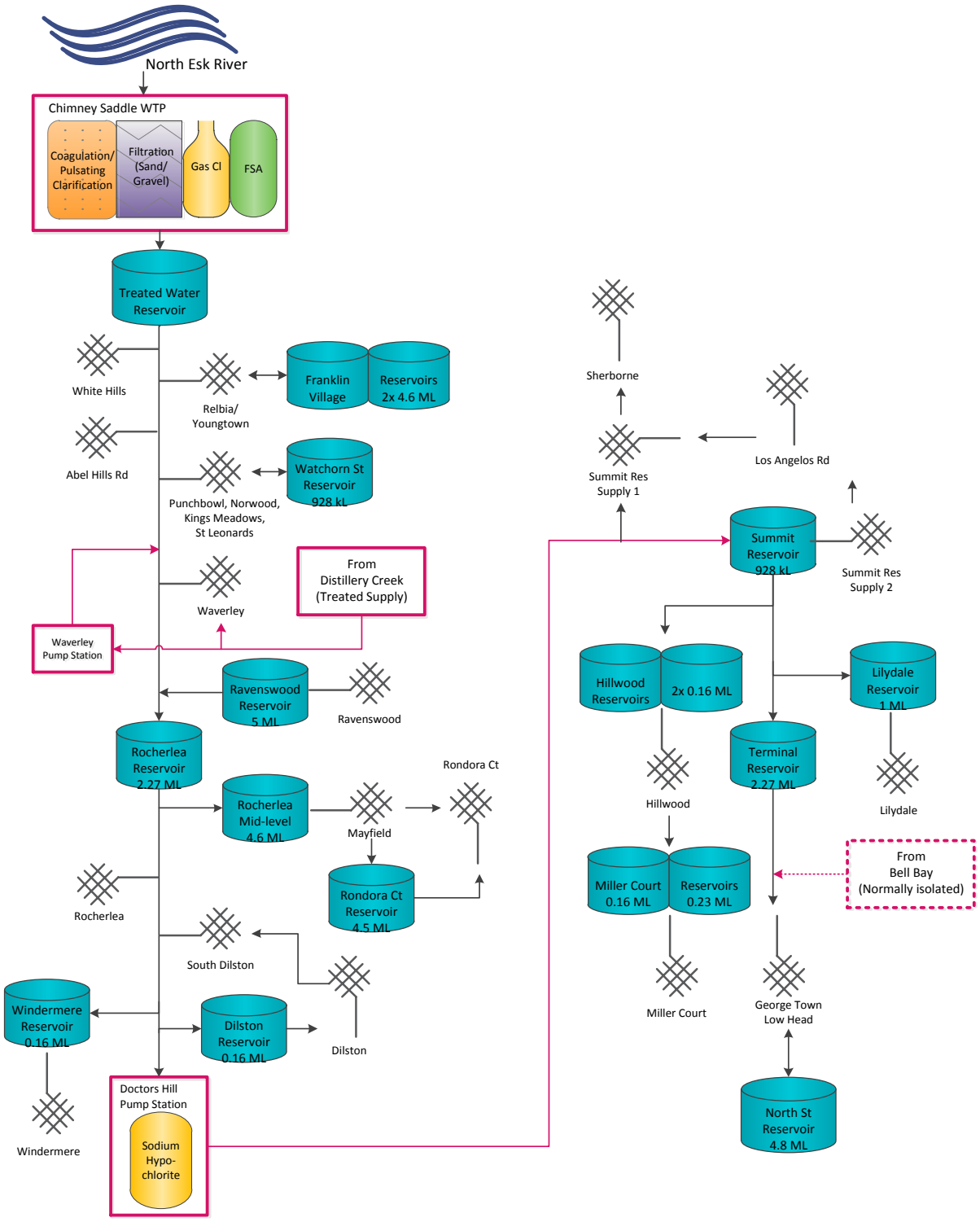


Figure 6.45.1-a North Esk system schematic

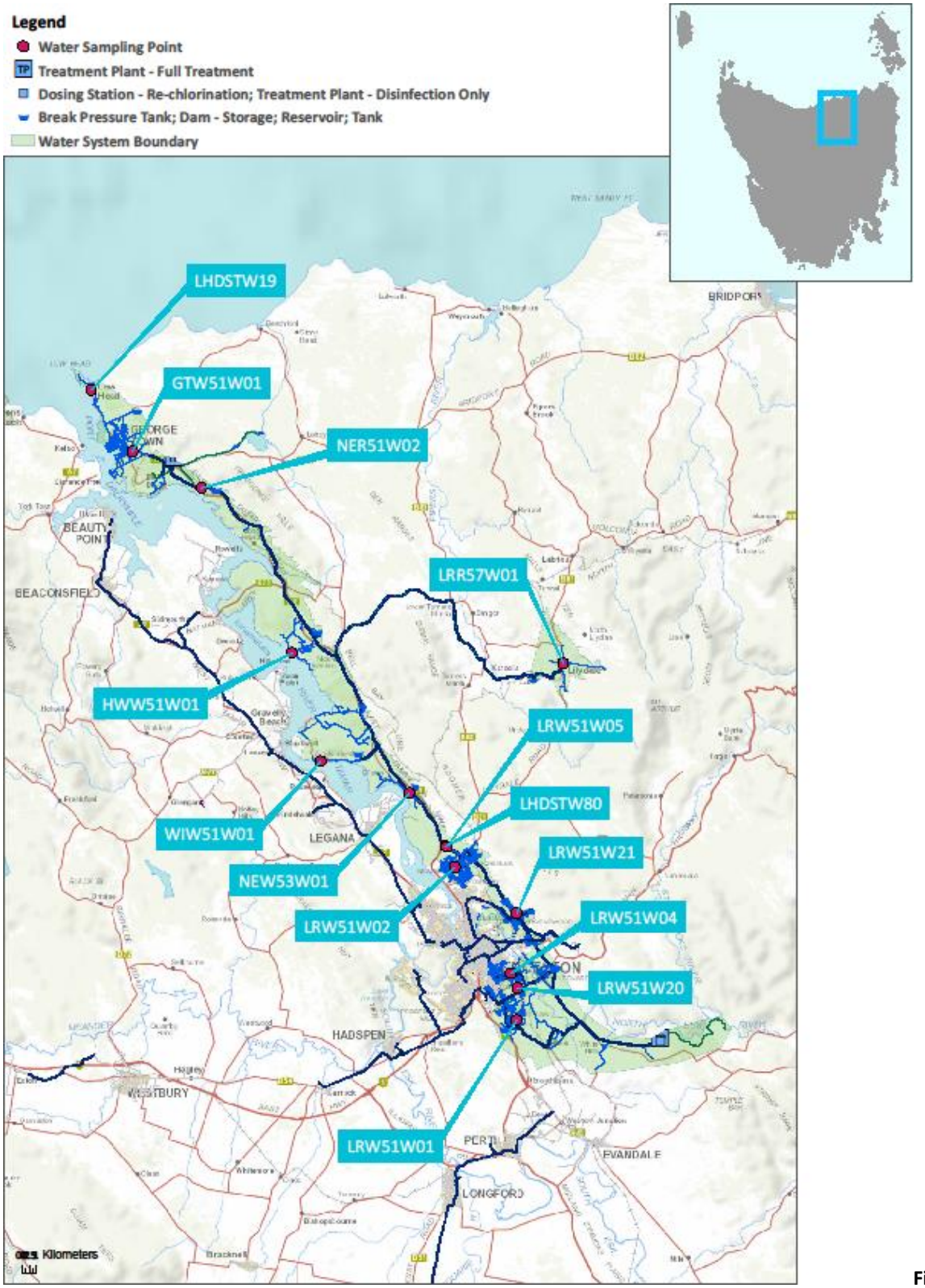


Figure 6.45.1-b Map of North Esk monitoring system

6.45.2. Summary of Annual Reticulation Compliance (2016–17)

Table 6.45.2-a Compliance sampling program

Planned compliance sampling program (2016-17)								
Site name	Site Code	Micros	Metals	DBP	Fluoride (Field)	Fluoride (Lab)	Chemical Profile	Process Chemicals
Youngtown, Poplar Parade	LRW51W01	W	n/a	n/a	W	n/a	n/a	n/a
Norwood, Charlton Park	LRW51W20	W	n/a	n/a	n/a	n/a	n/a	n/a
Norwood, Leith St	LRW51W04	W	n/a	n/a	n/a	n/a	n/a	n/a
Ravenswood, Primary School	LRW51W21	W	n/a	n/a	n/a	n/a	n/a	n/a
Newnham, Franmaree St	LRW51W02	W	n/a	n/a	n/a	n/a	n/a	n/a
Rocherlea, TasWater Depot	LRW51W05	W	n/a	n/a	n/a	n/a	n/a	n/a
Dilston Hall	NEW53W01	W	n/a	n/a	n/a	n/a	n/a	n/a
Windermere, Church	WIW51W01	W	n/a	n/a	n/a	n/a	n/a	n/a
Hillwood, Jetty	HWW51W01	W	n/a	n/a	n/a	n/a	n/a	n/a
Lilydale, 1972 Lilydale Rd (Public Toilets)	LRR57W01	W	n/a	n/a	n/a	n/a	n/a	n/a
George Town, Information Centre	GTW51W01	W	Q	Q	W	M	Q	n/a
Low Head Park Toilet	LHDSTW19	W	n/a	n/a	n/a	n/a	n/a	n/a
Bell Bay Interconnector	NER51W02	W	n/a	n/a	n/a	n/a	n/a	n/a
Number Planned Samples		**661**	**4**	**4**	**104**	**12**	**4**	**1**
Number Samples Tested		**660#**	**4**	**4**	**104**	**12**	**4**	**1**

- # One micro sample missed on 4/10/16 for site NER51W02: Bell Bay Interconnector due to inaccessibility.

6.45.3. Summary of current and historic performance (2012-17)

Table 6.45.3-a Historical health performance overview (5 year comparison)

Historical health performance overview (5 year comparison)					
Indicator	**2012-13**	**2013-14**	**2014-15**	**2015-16**	**2016-17**
Microbiological	100.0%	99.0%	99.0%	99.0%	100.0%
Fluoride	n/a	100.0%	100.0%	100.0%	100.0%
Metals	100.0%	100.0%	100.0%	100.0%	100.0%
Disinfection by products	100.0%	100.0%	100.0%	100.0%	100.0%

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

Table 6.45.3-b Distribution fluoride testing overview (5 year comparison)

Distribution fluoride testing overview (5 year comparison)					
Indicator	**2012-13**	**2013-14**	**2014-15**	**2015-16**	**2016-17**
Exceeding 1.5 mg/L	1	0	0	0	0
Within target range (%)	n/a	n/a	100.0%	83.0%	82.9%
Mean dose (mg/L)	n/a	n/a	1.07	0.88	0.86

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

6.45.4. Analysis of current health performance (2016-17)

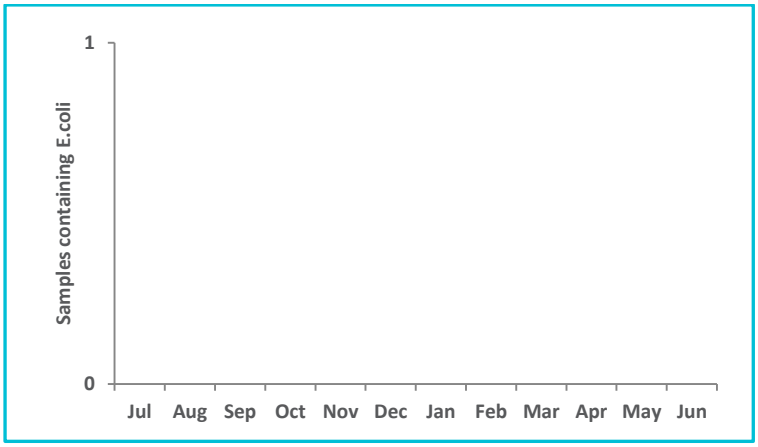


Figure 6.45.4-a Microbiological non-compliances by month (2016-17)

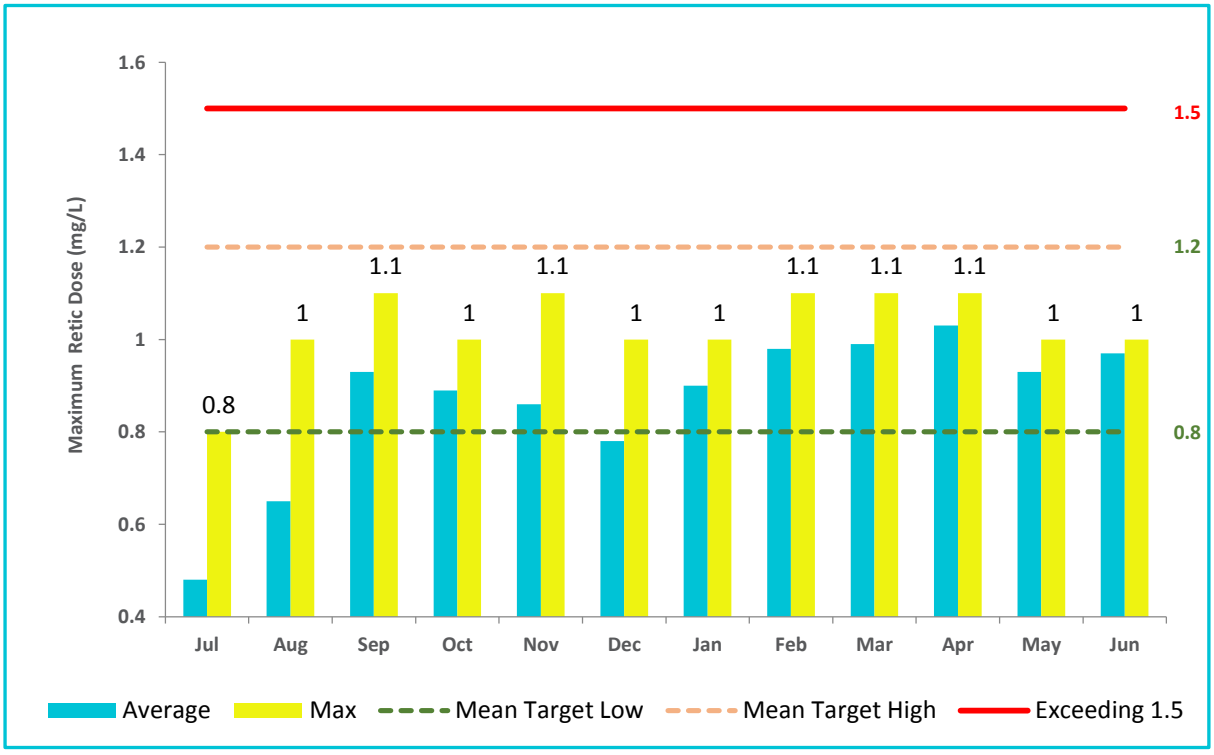


Figure 6.45.4-b Average reticulation fluoride dose by month (2016-17)

Table 6.45.4-a Metals performance 2016-17

Metals – health regulated parameters (2016–17)								
Parameter	Limit	Unit	Samples	Exceedances	Performance %	Mean	Min.	Max.
Antimony	0.003	mg/L	4	0	100	<0.0005	<0.0005	<0.0005
Arsenic	0.01	mg/L	4	0	100	0.0005	<0.0003	<0.001
Barium	2	mg/L	4	0	100	0.0088	0.0078	0.0104
Cadmium	0.002	mg/L	4	0	100	<0.0001	<0.0001	<0.0001
Chromium	0.05	mg/L	4	0	100	0.0003	<0.0001	<0.001
Copper	2	mg/L	4	0	100	0.0043	0.0027	0.007
Lead	0.01	mg/L	4	0	100	0.0002	<0.0001	<0.0005
Manganese	0.5	mg/L	4	0	100	0.0039	0.0003	0.0116
Mercury	0.001	mg/L	4	0	100	0.00007	0.00004	0.00015
Molybdenum	0.05	mg/L	4	0	100	0.0002	<0.0001	<0.0005
Nickel	0.02	mg/L	4	0	100	0.0003	<0.0001	<0.0005
Selenium	0.01	mg/L	4	0	100	0.0006	<0.0001	<0.002

Table 6.45.4-b Disinfection by product performance 2016-17

Disinfection by products – health regulated parameters (2016–17)								
Parameter	Limit	Unit	Samples	Exceedances	Performance %	Mean	Min.	Max.
Dichloroacetic acid	100	µg/L	4	0	100	6	4	8
Monochloroacetic acid	150	µg/L	4	0	100	<5	<3	<5
Trichloroacetic acid	100	µg/L	4	0	100	10.25	8	13
Total trihalomethanes	250	µg/L	4	0	100	26.25	22	31

6.45.5. Analysis of overall system performance (2016-17)

Table 6.45.5-a General physical performance 2016-17

General physical parameters (2016-17)					
Parameter	**Unit**	**Guideline Value**	**Mean**	**Min**	**Max**
Chlorine residual	mg/L	0.1 - <0.8	0.54	0.00	1.07
Colour True	HU	15	<1	<1	<1
pH	Units	6.5 – 8.5	7.08	6.54	7.72
Turbidity	NTU	1	0.23	0.09	2.58

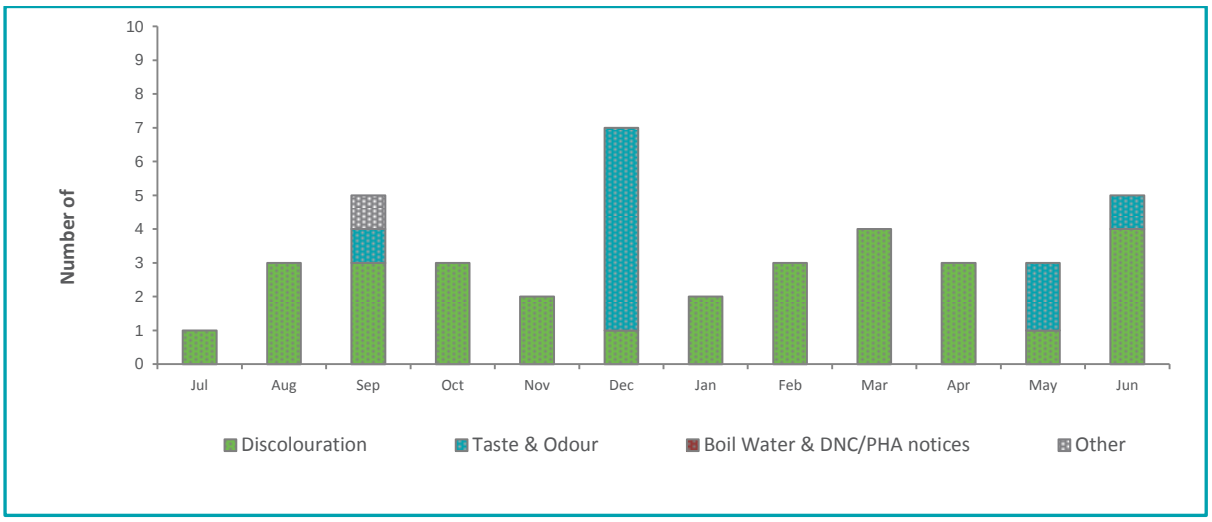


Figure 6.45.5-a Customer complaints by month and type

6.46. Oatlands drinking water system

6.46.1. Summary of system status

Oatlands drinking water system	
System status (as at 30 June 2017)	Potable
Total number of connections	515
Fluoride	Sodium fluoride

Performance overview against health targets (2016-17)

Indicator	Outcome	Compliant	Target	Sampling Events	Non-conformances
Microbiological	100.0%	☑	98.0%	52	0
Fluoride	100.0%	☑	90.0%	103	0
Metals	100.0%	☑	100.0%	4	0
DBPs	100.0%	☑	100.0%	4	0

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

Overall system performance (2016-17)

Indicator	Occurrences	Details
Customer complaints	44	Discoloured water, taste & odour.
Public health warnings issued	0	
System incidents & issues	0	
Catchment and water source issues	0	

Current and future planned infrastructure and operational changes

Project	Description	Progress	Est. Delivery	Est. Spend
n/a	n/a	n/a	n/a	n/a

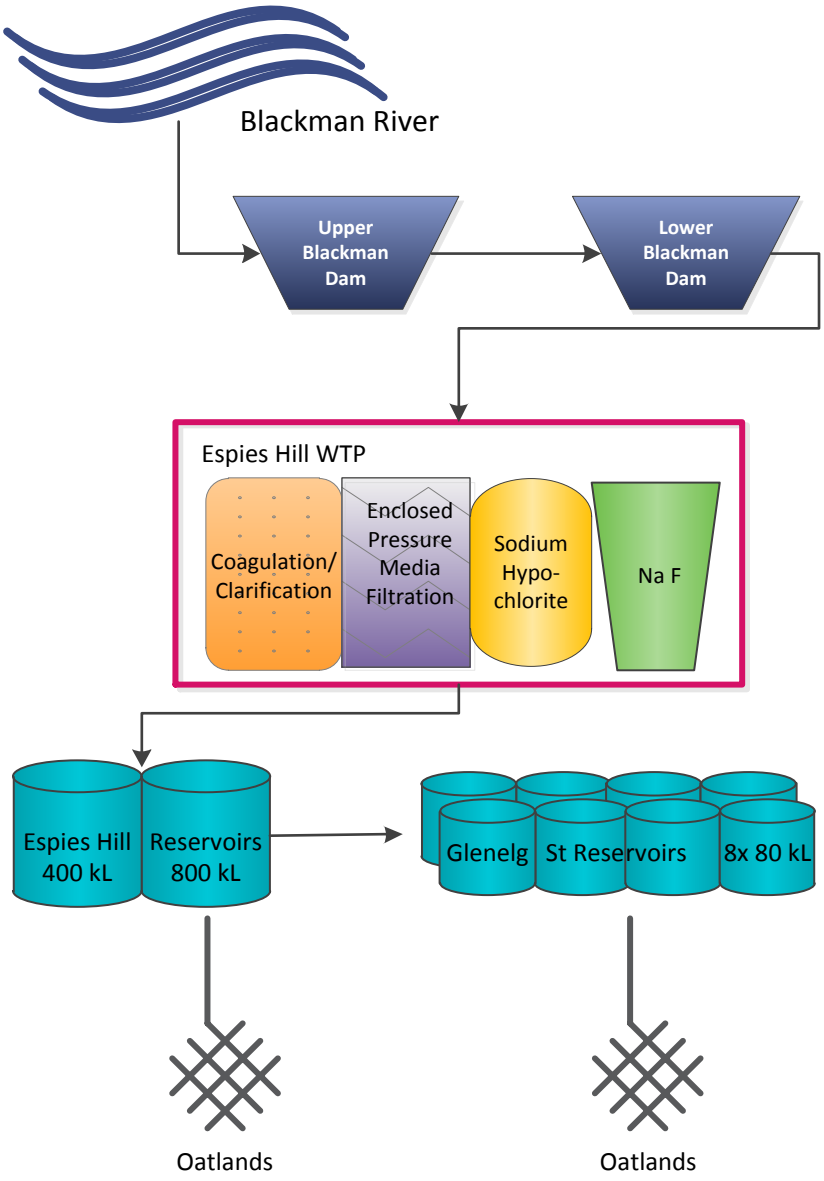


Figure 6.46.1-a Oatlands system schematic

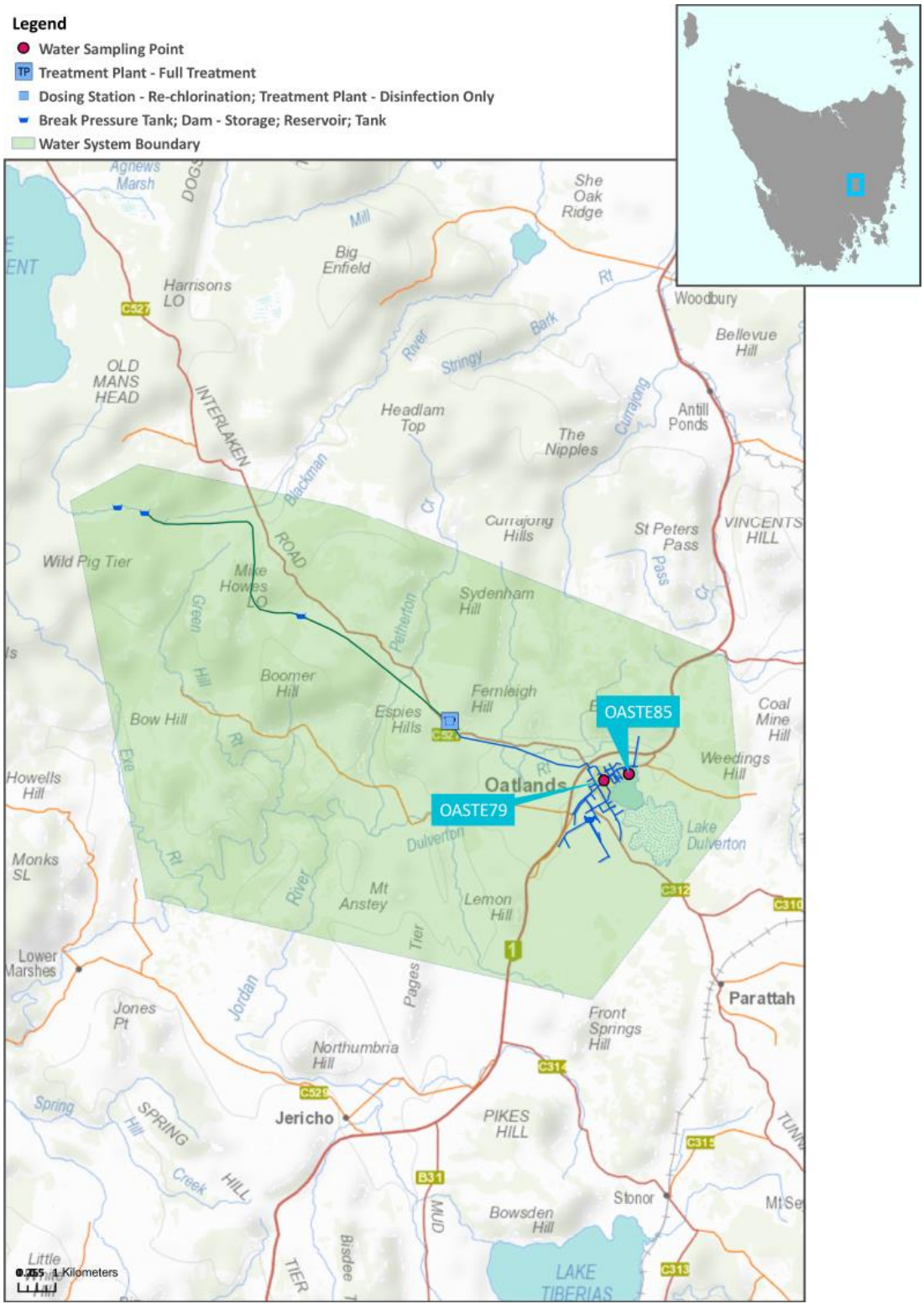


Figure 6.46.1-b Map of Oatlands monitoring system

6.46.2. Summary of Annual Reticulation Compliance (2016–17)

Table 6.46.2-a Compliance sampling program

Planned compliance sampling program (2016-17)								
Site name	Site Code	Micros	Metals	DBP	Fluoride (Field)	Fluoride (Lab)	Chemical Profile	Process Chemicals
Oatlands/Wellington St, Sample Post	OASTE79	W	Q	Q	W	M	Q	n/a
Oatlands/Lake SPS	OASTE85	n/a	n/a	n/a	W	n/a	n/a	n/a
Number Planned Samples		**52**	**4**	**4**	**104**	**12**	**4**	**0**
Number Samples Tested		**52**	**4**	**4**	**103#**	**12**	**4**	**0**

- # Missing fluoride sample on 22/11/16 due to sampling error.

6.46.3. Summary of current and historic performance (2012-17)

Table 6.46.3-a Historical health performance overview (5 year comparison)

Historical health performance overview (5 year comparison)					
Indicator	2012-13	2013-14	2014-15	2015-16	2016-17
Microbiological	100.0%	100.0%	100.0%	100.0%	100.0%
Fluoride	100.0%	100.0%	100.0%	100.0%	100.0%
Metals	100.0%	100.0%	100.0%	100.0%	100.0%
Disinfection by products	100.0%	100.0%	100.0%	100.0%	100.0%

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

Table 6.46.3-b Distribution fluoride testing overview (5 year comparison)

Distribution fluoride testing overview (5 year comparison)					
Indicator	**2012-13**	**2013-14**	**2014-15**	**2015-16**	**2016-17**
Exceeding 1.5 mg/L	0	0	0	0	0
Within target range (%)	Not Required	Not Reported	95.1%	91.7%	94.2%
Mean dose (mg/L)	Not Required	Not Reported	1.01	1.03	1.08

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

6.46.4. Analysis of current health performance (2016-17)

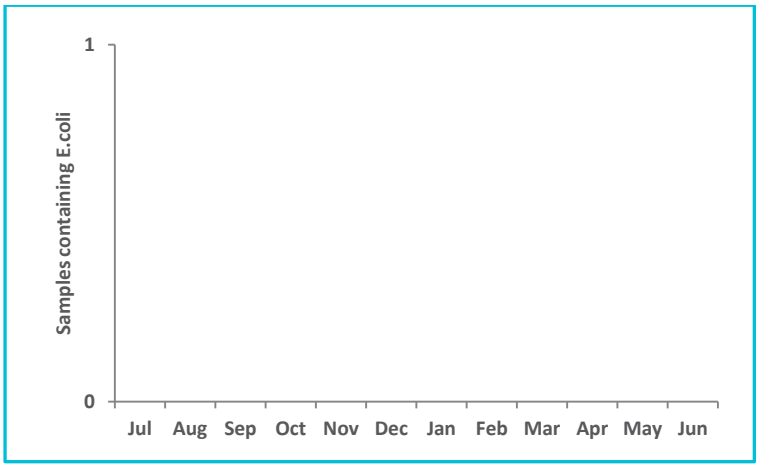


Figure 6.46.4-a Microbiological non-compliances by month (2016-17)

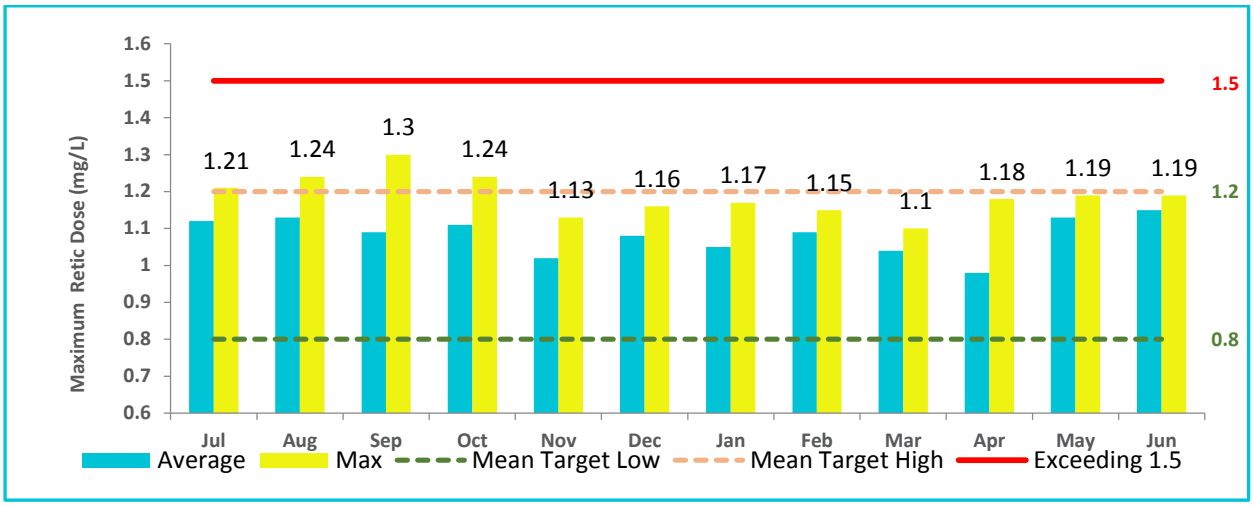


Figure 6.46.4-b Average reticulation fluoride dose by month (2016-17)

Table 6.46.4-a Metals performance 2016-17

Metals – health regulated parameters (2016–17)								
Parameter	**Limit**	**Unit**	**Samples**	**Exceedances**	**Performance %**	**Mean**	**Min.**	**Max.**
Antimony	0.003	mg/L	4	0	100	<0.0005	<0.0005	<0.0005
Arsenic	0.01	mg/L	4	0	100	0.0005	<0.0003	<0.001
Barium	2	mg/L	4	0	100	0.0052	0.005	0.0056
Cadmium	0.002	mg/L	4	0	100	<0.0001	<0.0001	<0.0001
Chromium	0.05	mg/L	4	0	100	0.0003	0.0001	<0.001
Copper	2	mg/L	4	0	100	0.0021	0.0019	0.0027
Lead	0.01	mg/L	4	0	100	0.0003	0.0001	<0.0005
Manganese	0.5	mg/L	4	0	100	0.0043	0.0003	0.015
Mercury	0.001	mg/L	4	0	100	0.00009	<0.00005	0.00015
Molybdenum	0.05	mg/L	4	0	100	0.0002	<0.0001	<0.0005
Nickel	0.02	mg/L	4	0	100	0.0003	<0.0001	<0.0005
Selenium	0.01	mg/L	4	0	100	0.0006	<0.0001	<0.002

Table 6.46.4-b Disinfection by product performance 2016-17

Disinfection by products – health regulated parameters (2016–17)								
Parameter	Limit	Unit	Samples	Exceedances	Performance %	Mean	Min.	Max.
Dichloroacetic acid	100	µg/L	4	0	100	22	19	25
Monochloroacetic acid	150	µg/L	4	0	100	3.25	<3	6
Trichloroacetic acid	100	µg/L	4	0	100	36.5	32	44
Total trihalomethanes	250	µg/L	4	0	100	49.5	27	68

6.46.5. Analysis of overall system performance (2016-17)

Table 6.46.5-a General physical performance 2016-17

General physical parameters (2016-17)					
Parameter	Unit	Guideline Value	Mean	Min	Max
Chlorine residual	mg/L	0.1 - <0.8	0.42	0.07	0.96
Colour True	HU	15	<1	<1	<1
pH	Units	6.5 – 8.5	7.15	6.72	7.56
Turbidity	NTU	1	0.36	0.11	1.58

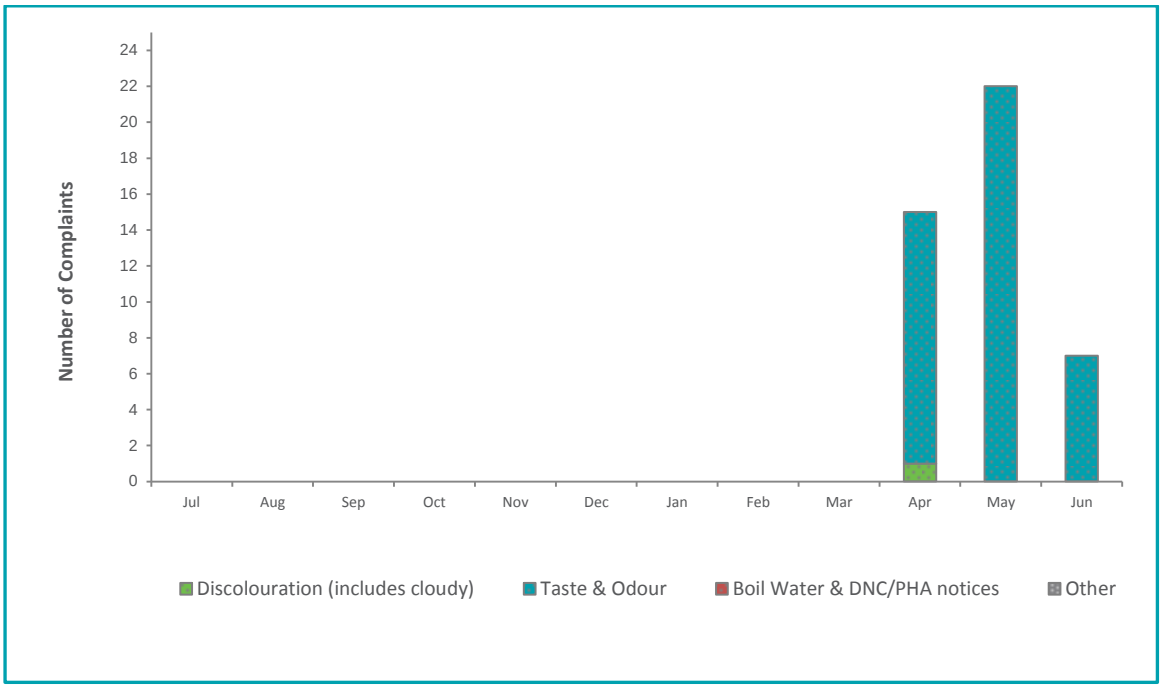


Figure 6.46.5-a Customer complaints by month and type

6.47. Orford drinking water system

6.47.1. Summary of system status

Orford drinking water system	
System status (as at 30 June 2017)	Potable
Total number of connections	1120
Fluoride	Sodium fluoride

Performance overview against health targets (2016-17)

Indicator	Outcome	Compliant	Target	Sampling Events	Non-conformances
Microbiological	100.0%	☑	98.0%	52	0
Fluoride	100.0%	☑	90.0%	104	0
Metals	100.0%	☑	100.0%	4	0
DBPs	100.0%	☑	100.0%	4	0

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

Overall system performance (2016-17)

Indicator	Occurrences	Details
Customer complaints	2	Discoloured water.
Public health warnings issued	0	
System incidents & issues	0	
Catchment and water source issues	0	

Current and future planned infrastructure and operational changes

Project	Description	Progress	Est. Delivery	Est. Spend
n/a	n/a	n/a	n/a	n/a

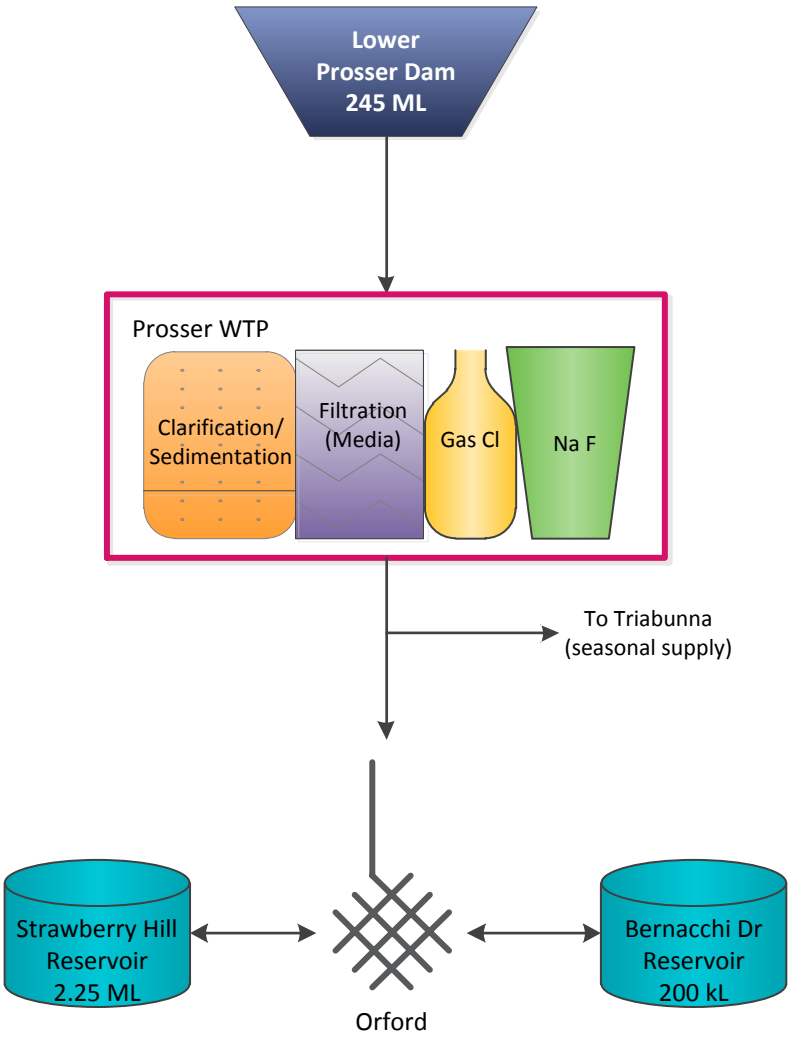


Figure 6.47.1-a Orford system schematic

Figure 6.47.1-b Map of Orford monitoring system

6.47.2. Summary of Annual Reticulation Compliance (2016–17)

Table 6.47.2-a Compliance sampling program

Planned compliance sampling program (2016-17)								
Site name	Site Code	Micros	Metals	DBP	Fluoride (Field)	Fluoride (Lab)	Chemical Profile	Process Chemicals
Orford/Manning Drive	GFSTE92	n/a	n/a	n/a	W	n/a	n/a	n/a
Orford/Old Convict Rd Sample Tap	GFSTE87	W	Q	Q	W	M	Q	n/a
Number Planned Samples		**52**	**4**	**4**	**104**	**12**	**4**	**0**
Number Samples Tested		**52**	**4**	**4**	**104**	**12**	**4**	**0**

6.47.3. Summary of current and historic performance (2012-17)

Table 6.47.3-a Historical health performance overview (5 year comparison)

Historical health performance overview (5 year comparison)					
Indicator	2012-13	2013-14	2014-15	2015-16	2016-17
Microbiological	100.0%	100.0%	100.0%	100.0%	100.0%
Fluoride	100.0%	100.0%	100.0%	100.0%	100.0%
Metals	100.0%	100.0%	100.0%	100.0%	100.0%
Disinfection by products	100.0%	100.0%	100.0%	100.0%	100.0%

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

Table 6.47.3-b Distribution fluoride testing overview (5 year comparison)

Distribution fluoride testing overview (5 year comparison)					
Indicator	**2012-13**	**2013-14**	**2014-15**	**2015-16**	**2016-17**
Exceeding 1.5 mg/L	0	0	0	0	0
Within target range (%)	Not Required	Not Reported	100.0%	90.6%	94.2%
Mean dose (mg/L)	Not Required	Not Reported	0.99	1.06	0.99

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

6.47.4. Analysis of current health performance (2016-17)

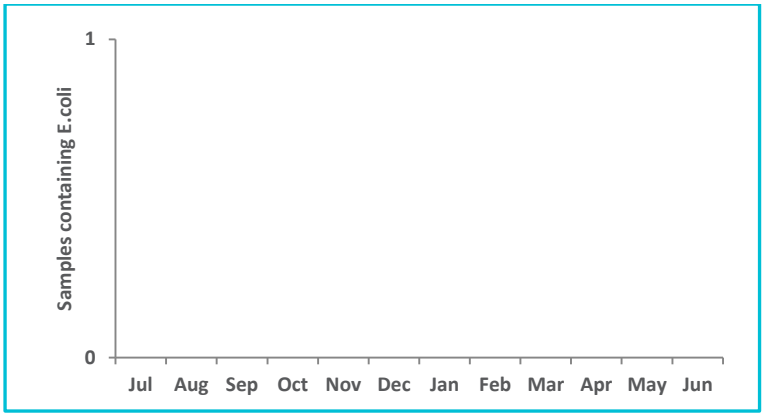


Figure 6.47.4-a Microbiological non-compliances by month (2016-17)

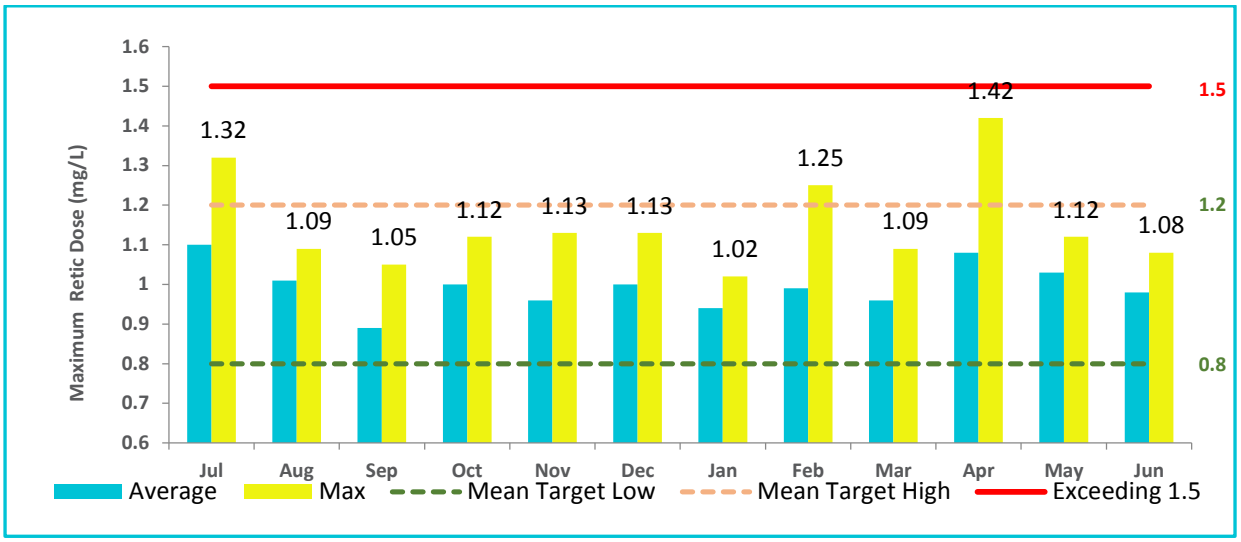


Figure 6.47.4-b Average reticulation fluoride dose by month (2016-17)

Table 6.47.4-a Metals performance 2016-17

Metals – health regulated parameters (2016–17)								
Parameter	**Limit**	**Unit**	**Samples**	**Exceedances**	**Performance %**	**Mean**	**Min.**	**Max.**
Antimony	0.003	mg/L	4	0	100	<0.0005	<0.0005	<0.0005
Arsenic	0.01	mg/L	4	0	100	0.0005	<0.0003	<0.001
Barium	2	mg/L	4	0	100	0.0175	0.015	0.0186
Cadmium	0.002	mg/L	4	0	100	0.0001	<0.0001	0.0002
Chromium	0.05	mg/L	4	0	100	0.0003	<0.0001	<0.001
Copper	2	mg/L	4	0	100	0.0078	0.007	0.0085
Lead	0.01	mg/L	4	0	100	0.0013	0.0009	0.0017
Manganese	0.5	mg/L	4	0	100	0.0093	0.009	0.0333
Mercury	0.001	mg/L	4	0	100	0.00005	<0.00003	0.00008
Molybdenum	0.05	mg/L	4	0	100	0.0002	<0.0001	<0.0005
Nickel	0.02	mg/L	4	0	100	0.0005	<0.0001	0.0008
Selenium	0.01	mg/L	4	0	100	0.0006	0.0001	<0.002

Table 6.47.4-b Disinfection by product performance 2016-17

Disinfection by products – health regulated parameters (2016–17)								
Parameter	Limit	Unit	Samples	Exceedances	Performance %	Mean	Min.	Max.
Dichloroacetic acid	100	µg/L	4	0	100	7	<1	15
Monochloroacetic acid	150	µg/L	4	0	100	<5	<3	<5
Trichloroacetic acid	100	µg/L	4	0	100	10.5	4	18
Total trihalomethanes	250	µg/L	4	0	100	80.5	55	108

6.47.5. Analysis of overall system performance (2016-17)

Table 6.47.5-a General physical performance 2016-17

General physical parameters (2016-17)					
Parameter	Unit	Guideline Value	Mean	Min	Max
Chlorine residual	mg/L	0.1 - <0.8	0.51	0.01	1.62
Colour True	HU	15	2	2	2
pH	Units	6.5 – 8.5	7.14	6.89	7.56
Turbidity	NTU	1	0.32	0.14	1.96

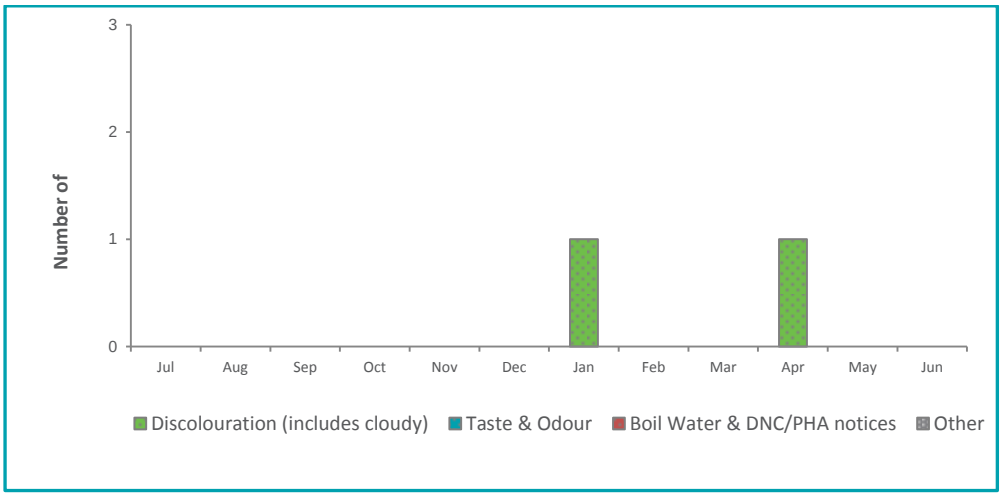


Figure 6.47.5-a Customer complaints by month and type

6.48. Ouse-Hamilton drinking water system

6.48.1. Summary of system status

Ouse-Hamilton drinking water system	
System status (as at 30 June 2017)	Potable
Total number of connections	260
Fluoride	n/a

Performance overview against health targets (2016-17)

Indicator	Outcome	Compliant	Target	Sampling Events	Non-conformances
Microbiological	100.0%	☑	98.0%	104	0
Fluoride	n/a	n/a	n/a	n/a	n/a
Metals	100.0%	☑	100.0%	8	0
DBPs	100.0%	☑	100.0%	8	0

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

Overall system performance (2016-17)

Indicator	Occurrences	Details
Customer complaints	0	
Public health warnings issued	0	
System incidents & issues	0	
Catchment and water source issues	0	

Current and future planned infrastructure and operational changes

Project	Description	Progress	Est. Delivery	Est. Spend
n/a	n/a	n/a	n/a	n/a

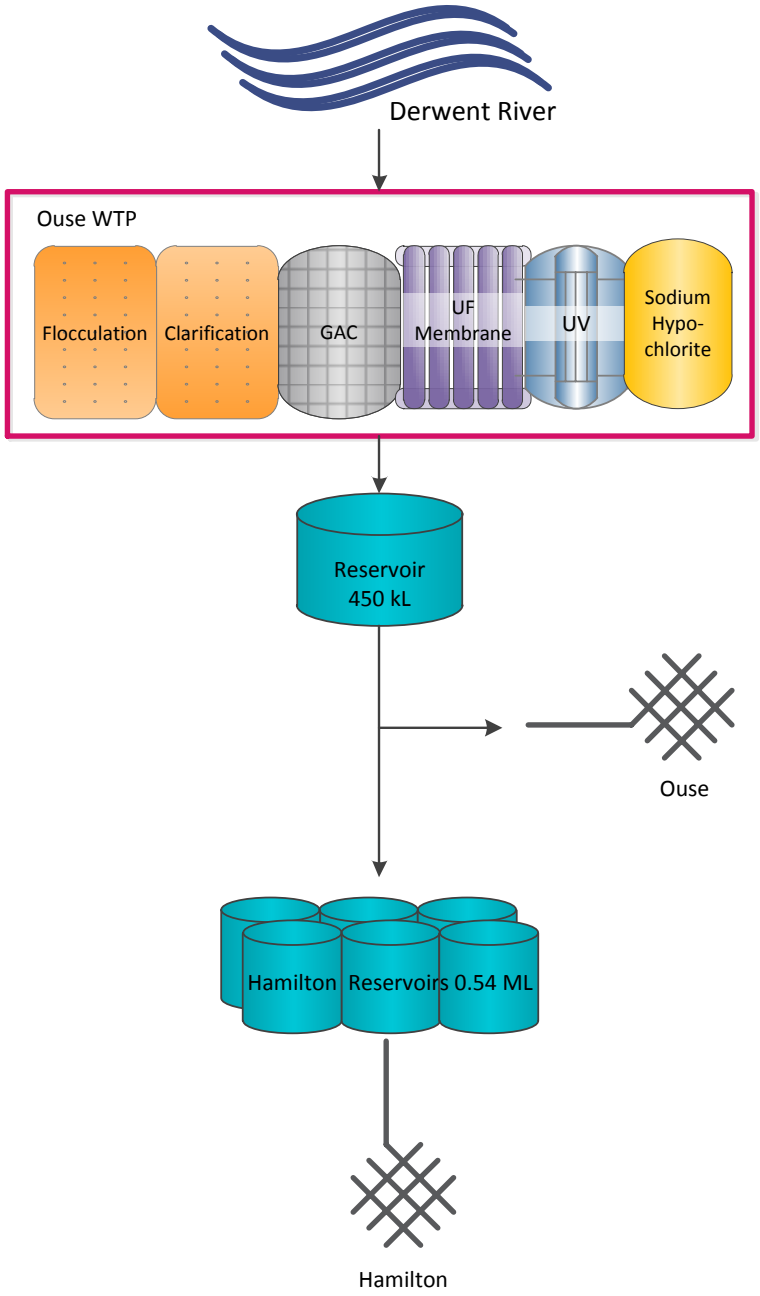


Figure 6.48.1-a Ouse-Hamilton system schematic

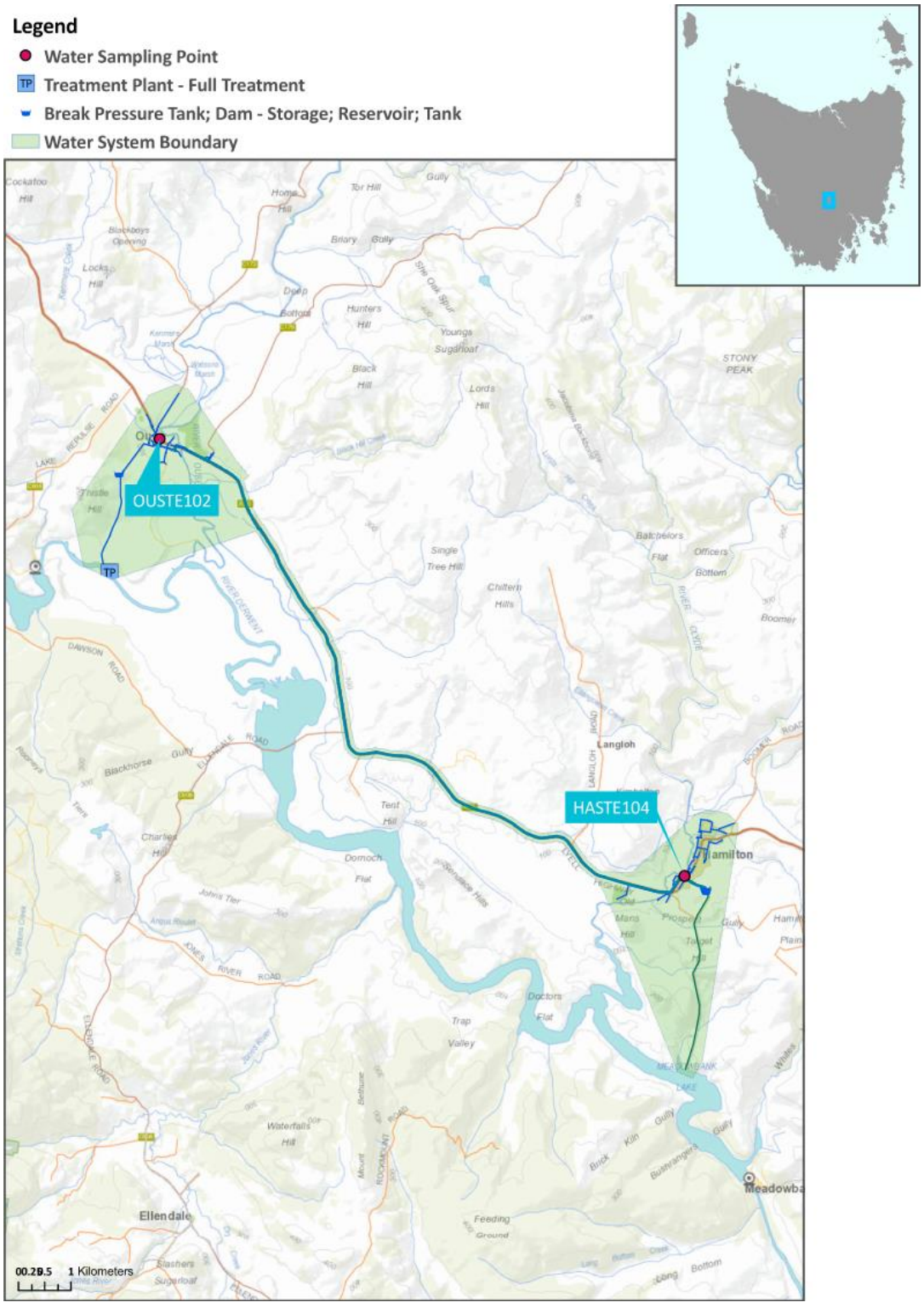


Figure 6.48.1-b Map of Ouse-Hamilton monitoring system

6.48.2. Summary of Annual Reticulation Compliance (2016–17)

Table 6.48.2-a Compliance sampling program

Planned compliance sampling program (2016-17)								
Site name	Site Code	Micros	Metals	DBP	Fluoride (Field)	Fluoride (Lab)	Chemical Profile	Process Chemicals
Ouse/Public Toilets, Sample Tap	OUSTE102	W	Q	Q	n/a	n/a	Q	n/a
Hamilton/Park, Sample Tap	HASTE104	W	Q	Q	n/a	n/a	Q	n/a
Number Planned Samples		**104**	**8**	**8**	**0**	**0**	**8**	**0**
Number Samples Tested		**104**	**8**	**8**	**0**	**0**	**8**	**0**

6.48.3. Summary of current and historic performance (2012-17)

Table 6.48.3-a Historical health performance overview (5 year comparison)

Historical health performance overview (5 year comparison)					
Indicator	2012-13	2013-14	2014-15	2015-16	2016-17
Microbiological	100.0%	100.0%	100.0%	100.0%	100.0%
Fluoride	n/a	n/a	n/a	n/a	n/a
Metals	100.0%	100.0%	100.0%	100.0%	100.0%
Disinfection by products	100.0%	100.0%	100.0%	100.0%	100.0%

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

6.48.4. Analysis of current health performance (2016-17)

Figure 6.48.4-a Microbiological non-compliances by month (2016-17)

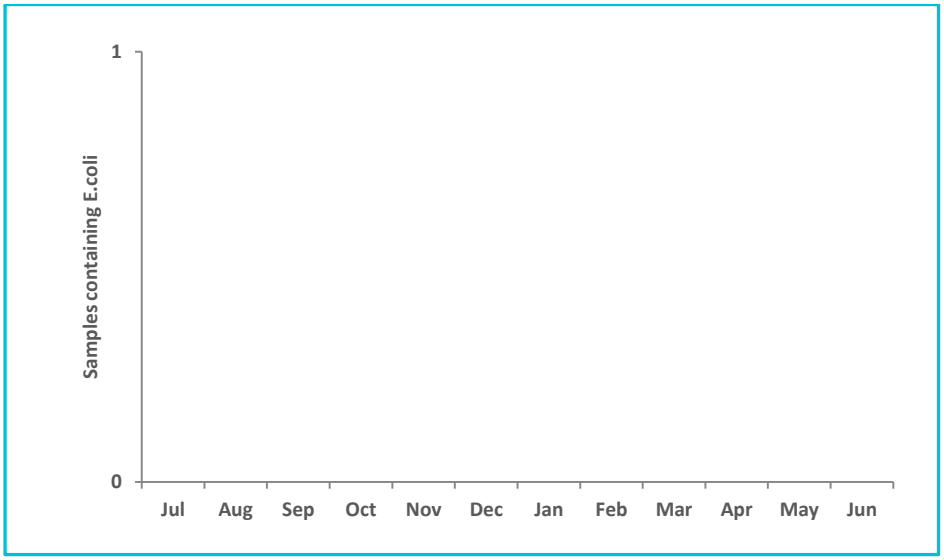


Table 6.48.4-a Metals performance 2016-17

Metals – health regulated parameters (2016–17)								
Parameter	Limit	Unit	Samples	Exceedances	Performance %	Mean	Min.	Max.
Antimony	0.003	mg/L	8	0	100	<0.0005	<0.0005	<0.0005
Arsenic	0.01	mg/L	8	0	100	0.0005	<0.0003	<0.001
Barium	2	mg/L	8	0	100	0.0021	0.0018	0.003
Cadmium	0.002	mg/L	8	0	100	<0.0001	<0.0001	<0.0001
Chromium	0.05	mg/L	8	0	100	0.0003	<0.0001	<0.001
Copper	2	mg/L	8	0	100	0.0054	0.0031	0.0083
Lead	0.01	mg/L	8	0	100	0.0003	0.0002	<0.0005
Manganese	0.5	mg/L	8	0	100	0.0008	0.0004	0.002
Mercury	0.001	mg/L	8	0	100	0.0001	<0.00005	0.00019
Molybdenum	0.05	mg/L	8	0	100	0.0002	<0.0001	<0.0005
Nickel	0.02	mg/L	8	0	100	0.0002	<0.0001	<0.0005
Selenium	0.01	mg/L	8	0	100	0.0006	<0.0001	<0.002

Table 6.48.4-b Disinfection by product performance 2016-17

Disinfection by products – health regulated parameters (2016–17)								
Parameter	Limit	Unit	Samples	Exceedances	Performance %	Mean	Min.	Max.
Dichloroacetic acid	100	µg/L	8	0	100	6.38	3	11
Monochloroacetic acid	150	µg/L	8	0	100	<5	<3	<5
Trichloroacetic acid	100	µg/L	8	0	100	12.75	3	27
Total trihalomethanes	250	µg/L	8	0	100	23.25	11	37

6.48.5. Analysis of overall system performance (2016-17)

Table 6.48.5-a General physical performance 2016-17

General physical parameters (2016-17)					
Parameter	Unit	Guideline Value	Mean	Min	Max
Chlorine residual	mg/L	0.1 - <0.8	0.30	0.01	1.52
Colour True	HU	15	<1	<1	<1
pH	Units	6.5 – 8.5	6.92	6.40	7.35
Turbidity	NTU	1	0.20	0.07	0.98

6.49. Pet River (Burnie) drinking water system

6.49.1. Summary of system status

Pet River (Burnie) drinking water system	
System status (as at 30 June 2017)	Potable
Total number of connections	8963
Fluoride	Fluorosilicic acid

Performance overview against health targets (2016-17)

Indicator	Outcome	Compliant	Target	Sampling Events	Non-conformances
Microbiological	100.0%	☑	98.0%	468	0
Fluoride	100.0%	☑	90.0%	104	0
Metals	100.0%	☑	100.0%	20	0
DBPs	100.0%	☑	100.0%	8	0

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

Overall system performance (2016-17)

Indicator	Occurrences	Details
Customer complaints	205	Discoloured water, taste & odour.
Public health warnings issued	0	
System incidents & issues	0	
Catchment and water source issues	0	

Current and future planned infrastructure and operational changes

Project	Description	Progress	Est. Delivery	Est. Spend
n/a	n/a	n/a	n/a	n/a

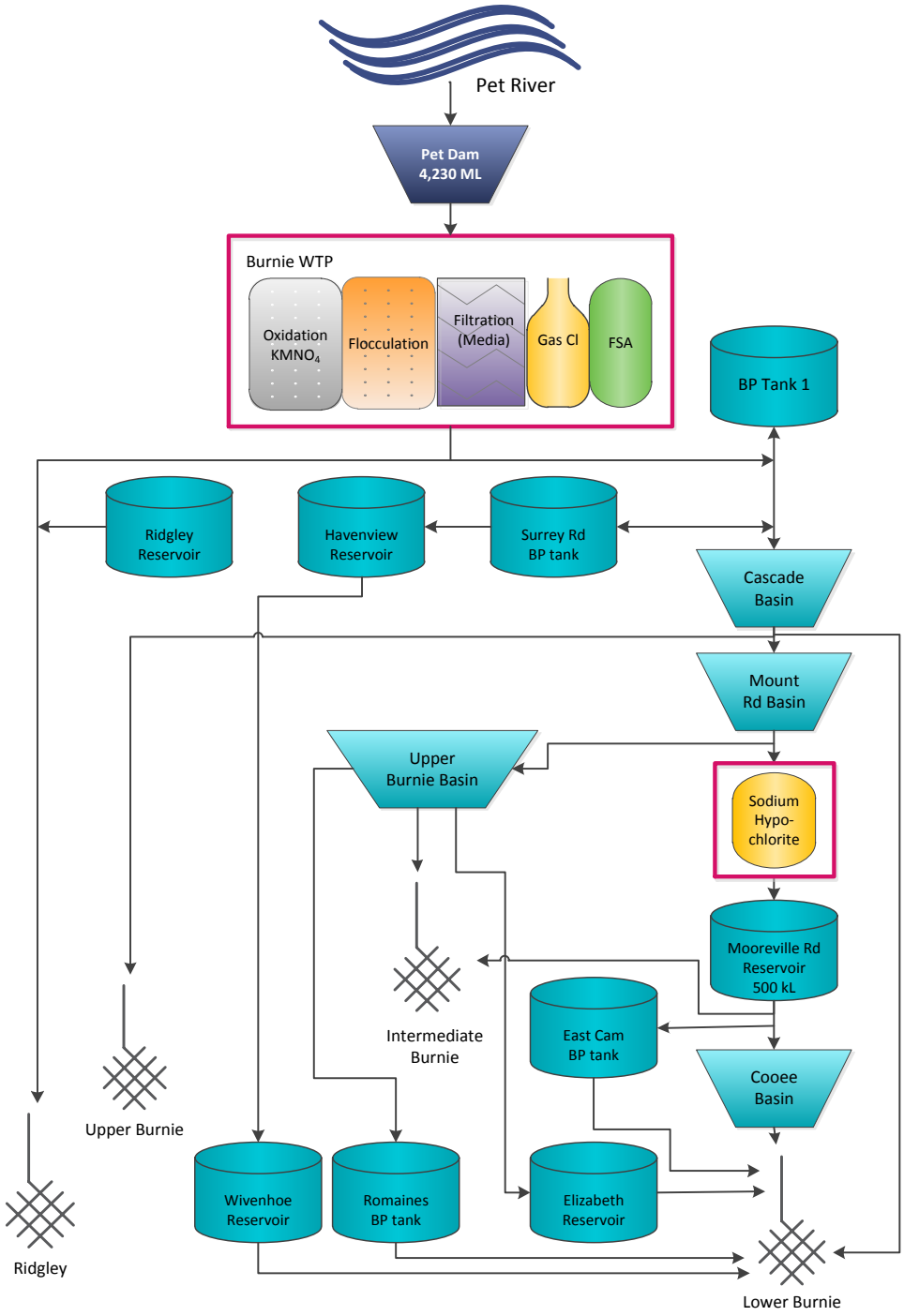


Figure 6.49.1-a Pet River (Burnie) system schematic

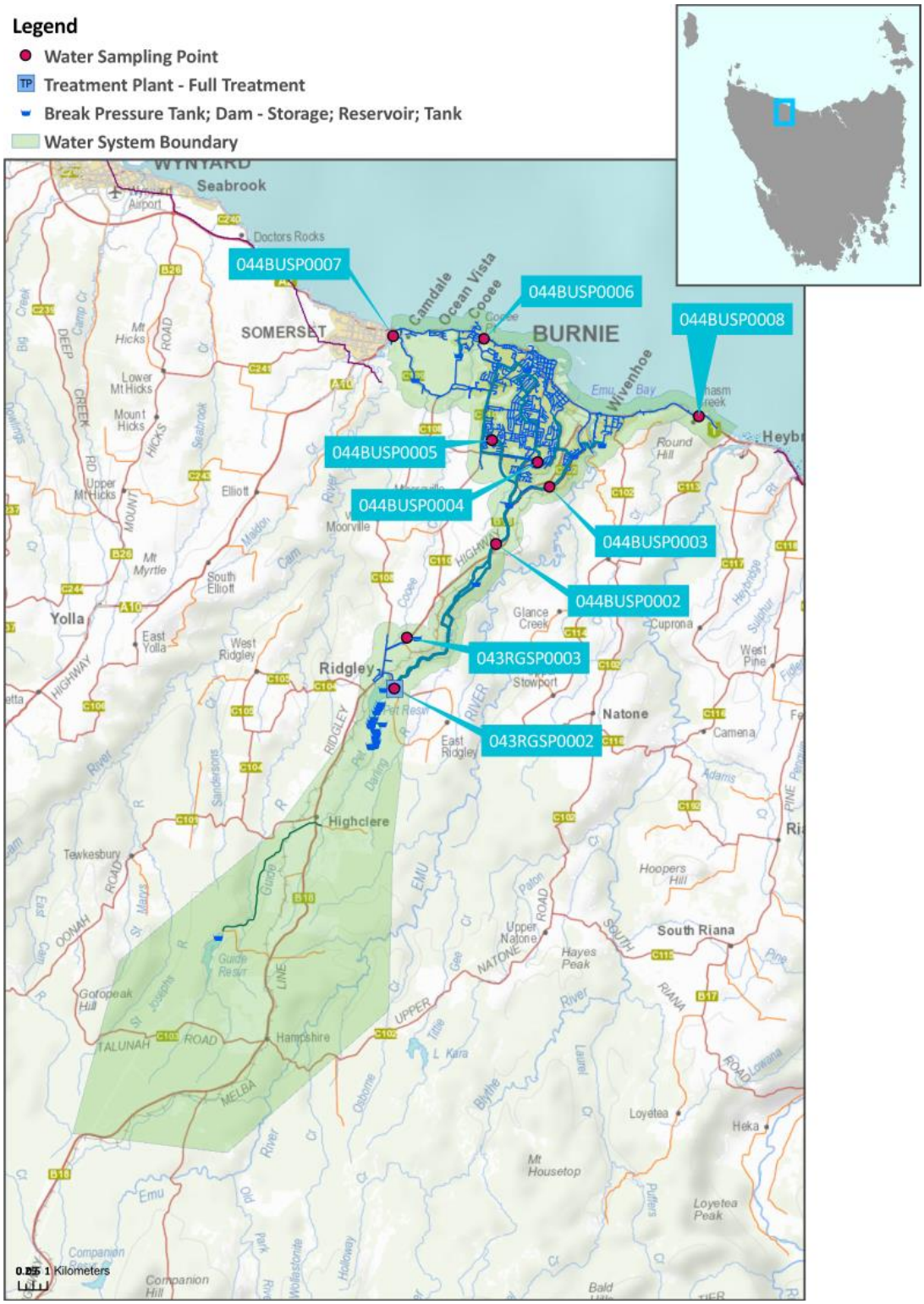


Figure 6.49.1-b Map of Pet River (Burnie) monitoring system

6.49.2. Summary of Annual Reticulation Compliance (2016–17)

Table 6.49.2-a Compliance sampling program

Planned compliance sampling program (2016-17)								
Site name	**Site Code**	**Micros**	**Metals**	**DBP**	**Fluoride (Field)**	**Fluoride (Lab)**	**Chemical Profile**	**Process Chemicals**
Burnie/C.W.S Outlet	043RGSP0002	W	n/a	n/a	n/a	n/a	Q	M
Burnie/Ridgley Mount Road	043RGSP0003	W	n/a	Q	W	n/a	n/a	n/a
Burnie/Cascade Outlet Sample Point	044BUSP0002	W	n/a	n/a	n/a	n/a	n/a	n/a
Burnie/Lactos Sample Point	044BUSP0003	W	n/a	n/a	n/a	n/a	n/a	n/a
Burnie/Upper Outlet Sample Point	044BUSP0004	W	n/a	n/a	n/a	n/a	n/a	n/a
Burnie/Moorville Rd Outlet Sample Point	044BUSP0005	W	n/a	n/a	n/a	n/a	n/a	n/a
Burnie/Cadburys Sample Point	044BUSP0006	W	n/a	n/a	n/a	n/a	n/a	n/a
Burnie/Scarfe St Sample Point	044BUSP0007	W	Q	Q	W	M	Q	n/a
Burnie/Chasm Cr Sample Point	044BUSP0008	W	Q	Q	n/a	n/a	Q	n/a
Number Planned Samples		**468**	**8**	**12**	**104**	**12**	**12**	**12**
Number Samples Tested		**468**	**8**	**12**	**104**	**12**	**12**	**12**

6.49.3. Summary of current and historic performance (2012-17)

Table 6.49.3-a Historical health performance overview (5 year comparison)

Historical health performance overview (5 year comparison)					
Indicator	**2012-13**	**2013-14**	**2014-15**	**2015-16**	**2016-17**
Microbiological	99.5%	100.0%	100.0%	99.8%	100.0%
Fluoride	n/a	n/a	100.0%	100.0%	100.0%
Metals	n/a	100.0%	99.8%	100.0%	100.0%
Disinfection by products	n/a	100.0%	100.0%	100.0%	100.0%

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

Table 6.49.3-b Distribution fluoride testing overview (5 year comparison)

Distribution fluoride testing overview (5 year comparison)					
Indicator	**2012-13**	**2013-14**	**2014-15**	**2015-16**	**2016-17**
Exceeding 1.5 mg/L	n/a	n/a	0	0	0
Within target range (%)	n/a	n/a	84.6%	96.9%	99.0%
Mean dose (mg/L)	n/a	n/a	0.93	0.97	0.96

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

6.49.4. Analysis of current health performance (2016-17)

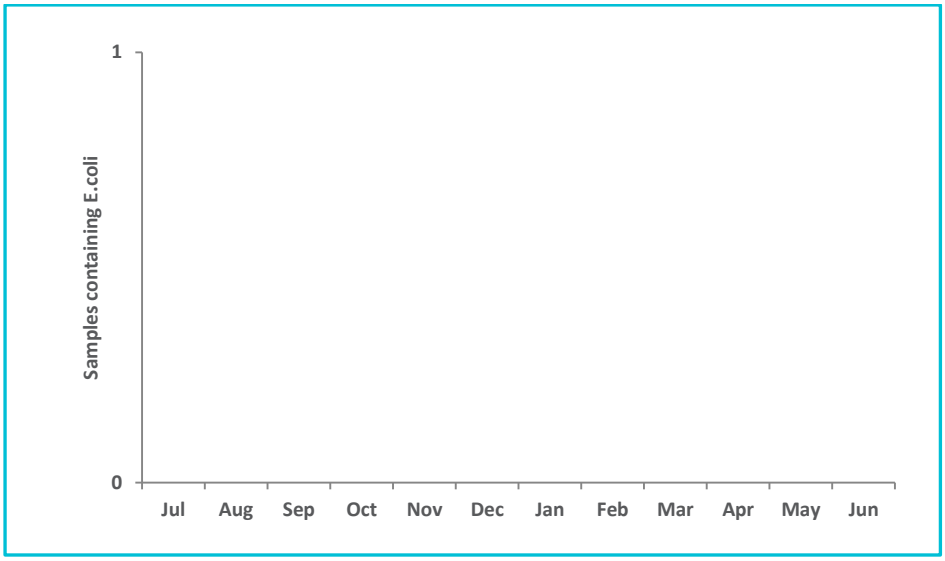


Figure 6.49.4-a Microbiological non-compliances by month (2016-17)

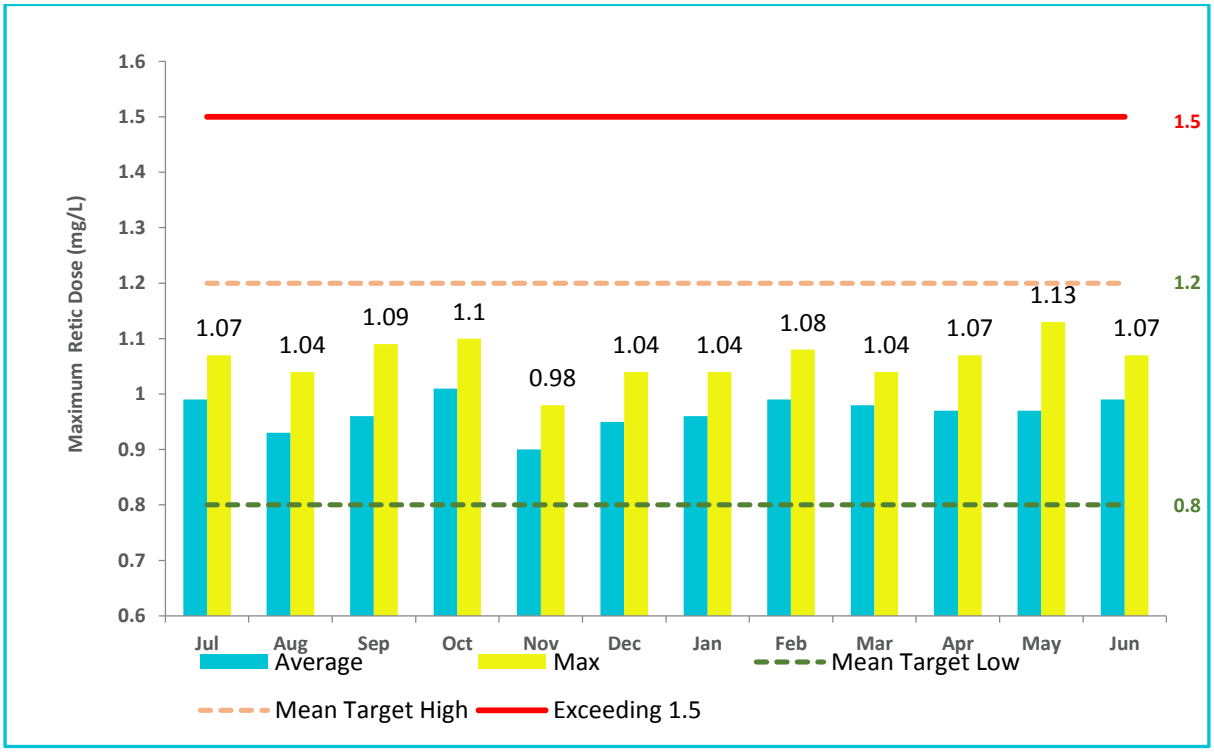


Figure 6.49.4-b Average reticulation fluoride dose by month (2016-17)

Table 6.49.4-a Metals performance 2016-17

Metals – health regulated parameters (2016–17)								
Parameter	Limit	Unit	Samples	Exceedances	Performance %	Mean	Min.	Max.
Antimony	0.003	mg/L	8	0	100	<0.0005	<0.0005	<0.0005
Arsenic	0.01	mg/L	20	0	100	0.0006	<0.0003	<0.001
Barium	2	mg/L	20	0	100	0.0058	0.0018	0.012
Cadmium	0.002	mg/L	20	0	100	<0.0001	<0.0001	<0.0001
Chromium	0.05	mg/L	20	0	100	0.0005	<0.0001	<0.001
Copper	2	mg/L	8	0	100	0.0326	0.0005	0.0852
Lead	0.01	mg/L	20	0	100	0.0003	<0.0001	0.0006
Manganese	0.5	mg/L	20	0	100	0.0183	0.0022	0.079
Mercury	0.001	mg/L	20	0	100	0.00008	<0.00003	0.00051
Molybdenum	0.05	mg/L	8	0	100	0.0003	<0.0001	<0.0005
Nickel	0.02	mg/L	20	0	100	0.0005	<0.0001	0.0028
Selenium	0.01	mg/L	20	0	100	0.001	<0.0001	<0.002

Table 6.49.4-b Disinfection by product performance 2016-17

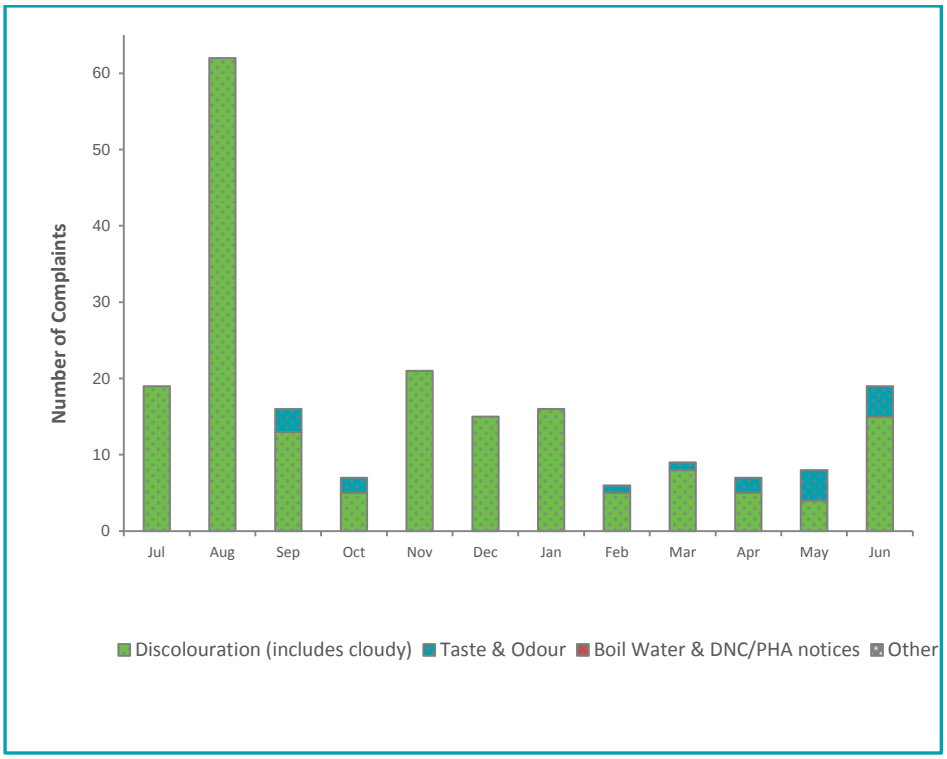
Disinfection by products – health regulated parameters (2016–17)								
Parameter	Limit	Unit	Samples	Exceedances	Performance %	Mean	Min.	Max.
Dichloroacetic acid	100	µg/L	8	0	100	0.5	0.5	0.5
Monochloroacetic acid	150	µg/L	8	0	100	2.75	2.5	3
Trichloroacetic acid	100	µg/L	8	0	100	1.25	0.5	3
Total trihalomethanes	250	µg/L	8	0	100	47.38	23	69

6.49.5. Analysis of overall system performance (2016-17)

Table 6.49.5-a General physical performance 2016-17

General physical parameters (2016-17)					
Parameter	**Unit**	**Guideline Value**	**Mean**	**Min**	**Max**
Chlorine residual	mg/L	0.1 - <0.8	0.37	0.00	1.60
Colour True	HU	15	<1	<1	<1
pH	Units	6.5 – 8.5	7.88	6.52	9.95
Turbidity	NTU	1	0.70	0.04	8.67

Figure 6.49.5-a Customer complaints by month and type



6.50. Pioneer drinking water system

6.50.1. System summary (2016-17)

Pioneer drinking water system	
System status (as at 30 June 2017)	DNC
Total number of connections	11
Fluoride	n/a

Performance overview against health targets (2016-17)

Indicator	Outcome	Compliant	Target	Sampling Events	Non-conformances
Microbiological	16.7%	☒	98.0%	12	10
Fluoride	n/a	n/a	n/a	n/a	n/a
Metals	100.0%	☑	100.0%	4	0
DBPs	n/a	n/a	n/a	n/a	n/a

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

Overall system performance (2016-17)

Indicator	Occurrences	Details
Customer complaints	2	Boil water & DNC alert.
Public health warnings issued	0	DNC since 8 November 2012
System incidents & issues	10	*E. coli* exceedances.
Catchment and water source issues	0	

Current and future planned infrastructure and operational changes

Project	Description	Progress	Est. Delivery	Est. Spend
n/a	n/a	n/a	n/a	n/a

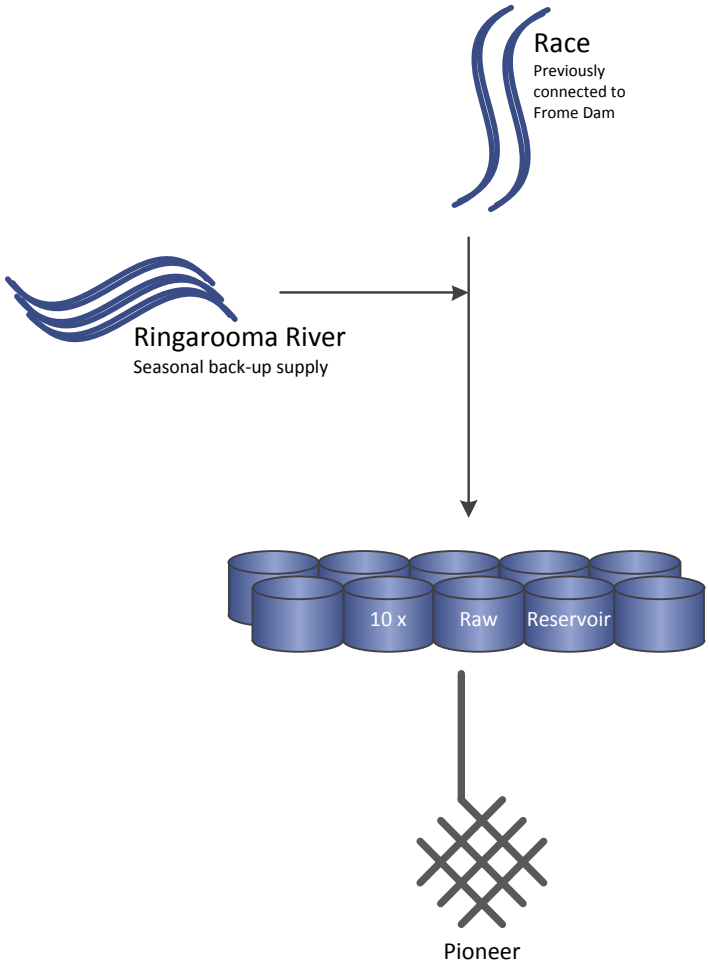


Figure 6.50.1-a Pioneer system schematic

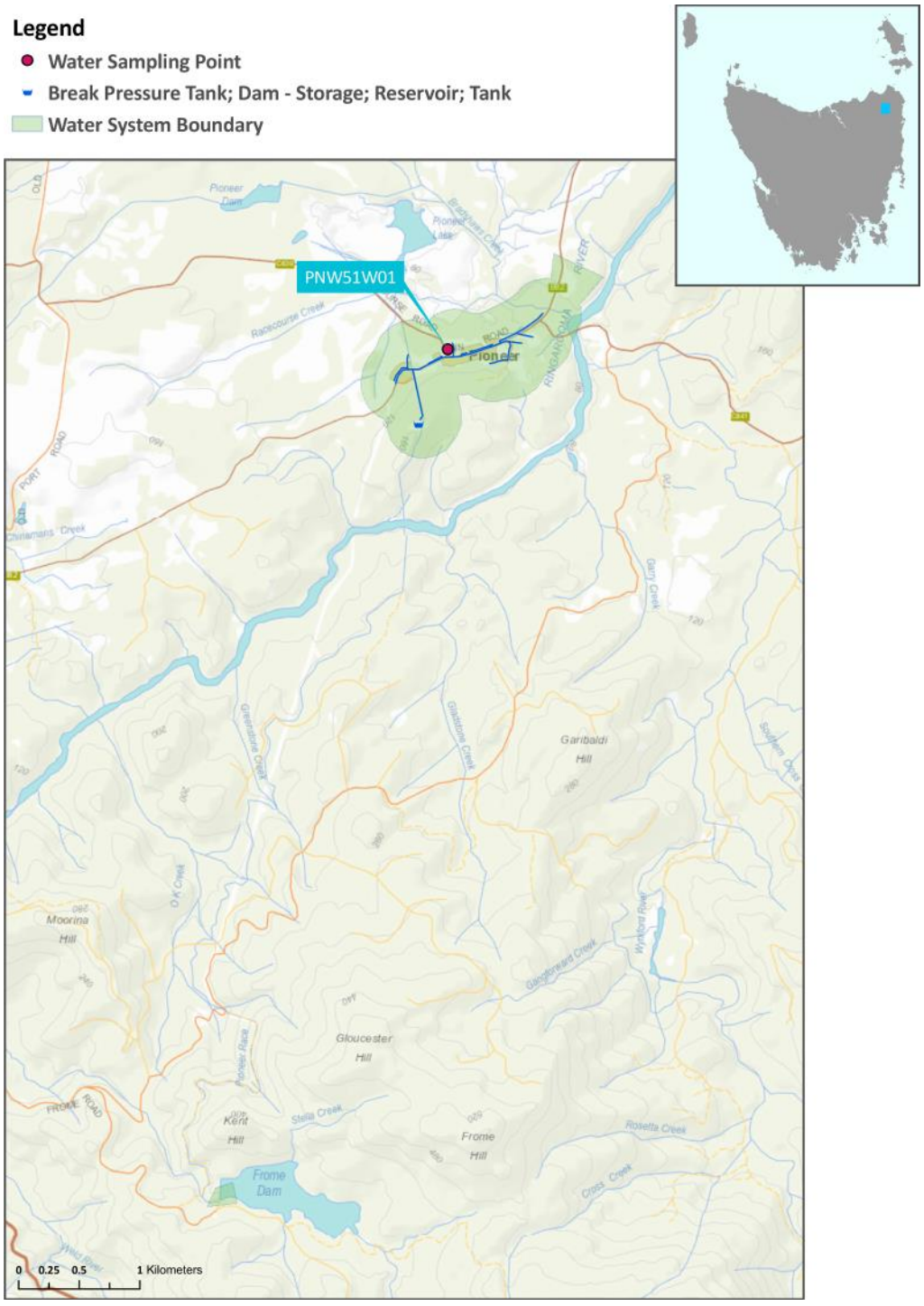


Figure 6.50.1-b Map of Pioneer monitoring system

6.50.2. Summary of Annual Reticulation Compliance (2016–17)

Table 6.50.2-a Compliance sampling program

Planned compliance sampling program (2016-17)								
Site name	**Site Code**	**Micros**	**Metals**	**DBP**	**Fluoride (Field)**	**Fluoride (Lab)**	**Chemical Profile**	**Process Chemicals**
Pioneer/Pioneer, Public Hall	PNW51W01	M	Q	n/a	n/a	n/a	Q	n/a
Number Planned Samples		**12**	**4**	**0**	**0**	**0**	**4**	**0**
Number Samples Tested		**12**	**4**	**0**	**0**	**0**	**4**	**0**

6.50.3. Summary of current and historic performance (2012-17)

Table 6.50.3-a Historical health performance overview (5 year comparison)

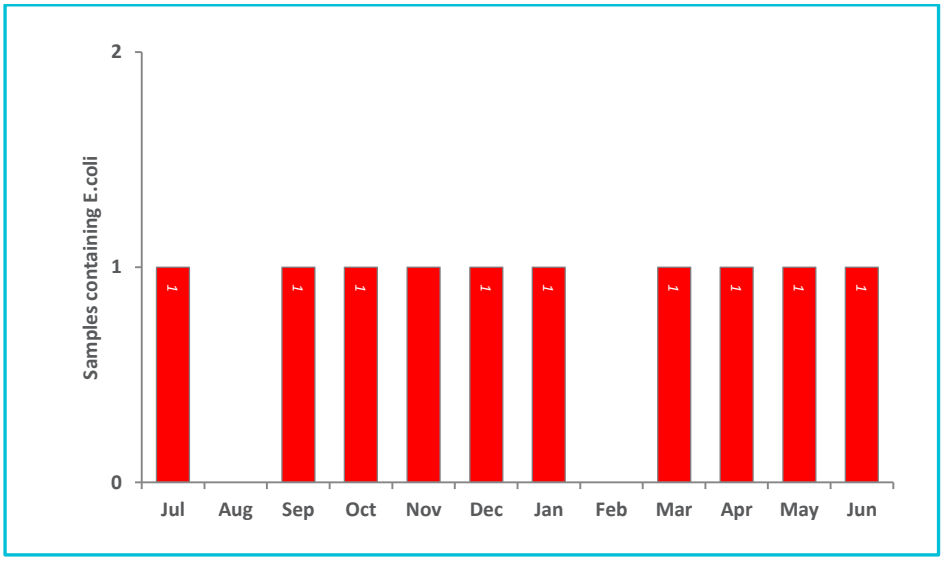
Historical health performance overview (5 year comparison)					
Indicator	**2012-13**	**2013-14**	**2014-15**	**2015-16**	**2016-17**
Microbiological	91.0%	86.0%	83.0%	33.3%	16.7%
Fluoride	n/a	n/a	n/a	n/a	n/a
Metals	76.0%	97.0%	100.0%	92.0%	100.0%
Disinfection by products	n/a	n/a	n/a	n/a	n/a

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

6.50.4. Analysis of current health performance (2016-17)

Figure 6.50.4-a Microbiological non-compliances by month (2016-17)



- Poor microbiological performance can be attributed to a lack of barriers and the susceptibility to changes in quality from the Ringarooma River.

The risk to public health is mitigated through the communication of the Permanent PHA to customers.

Table 6.50.4-a Metals performance 2016-17

Metals – health regulated parameters (2016–17)								
Parameter	Limit	Unit	Samples	Exceedances	Performance %	Mean	Min.	Max.
Antimony	0.003	mg/L	4	0	100	<0.0005	<0.0005	<0.0005
Arsenic	0.01	mg/L	4	0	100	0.0005	0.0003	<0.001
Barium	2	mg/L	4	0	100	0.0186	0.0164	0.0201
Cadmium	0.002	mg/L	4	0	100	<0.0001	<0.0001	<0.0001
Chromium	0.05	mg/L	4	0	100	0.0006	0.0003	<0.001
Copper	2	mg/L	4	0	100	0.114	0.0505	0.193
Lead	0.01	mg/L	4	0	100	0.0059	0.003	0.0092
Manganese	0.5	mg/L	4	0	100	0.0199	0.0101	0.03
Mercury	0.001	mg/L	4	0	100	0.00004	<0.00003	<0.00005
Molybdenum	0.05	mg/L	4	0	100	0.0002	<0.0001	<0.0005
Nickel	0.02	mg/L	4	0	100	0.0009	0.0003	0.0014
Selenium	0.01	mg/L	4	0	100	0.0006	<0.0001	<0.002
TOTAL			**4**	**0**	**100**			

6.50.5. Analysis of overall system performance (2016-17)

Table 6.50.5-a General physical performance 2016-17

General physical parameters (2016-17)					
Parameter	Unit	Guideline Value	Mean	Min	Max
Chlorine residual	mg/L	0.1 - <0.8	n/a	n/a	n/a
Colour True	HU	15	90.67	72	118
pH	Units	6.5 – 8.5	5.94	5.20	7.17
Turbidity	NTU	1	8.11	0.95	27.4

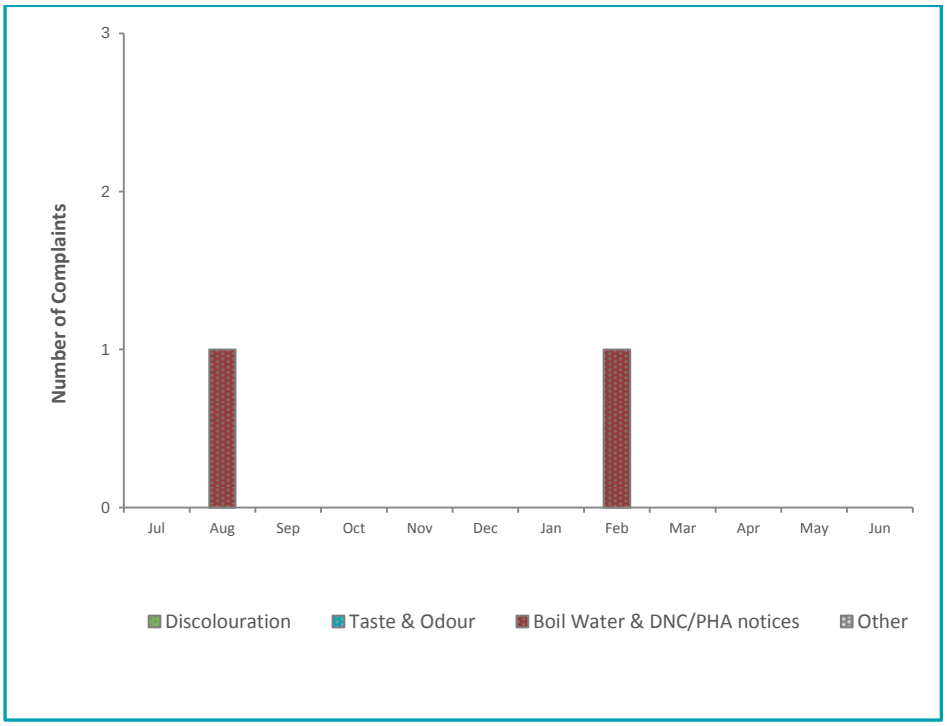


Figure 6.50.5-a Customer complaints by month and type

6.51. Potable tanks

6.51.1. Potable tanks summary (2016-17)

Potable tanks (2016-17)		
Drinking water system	**No. of Tanks**	**Drinking System Water Source**
Avoca	3	Longford or Campbell Town
Pioneer	1	Scottsdale
Ringarooma	4	Scottsdale
Rossarden	1	Longford or Campbell Town
Westerway	1	New Norfolk
Winnaleah	1	Scottsdale

Performance overview against health targets (2016-17)					
Indicator	**Outcome**	**Compliant**	**Target**	**Sampling Events**	**Non-conformances**
Microbiological	100.0%	☑	98.0%	708	0
Fluoride	n/a	n/a	n/a	n/a	n/a
Metals	n/a	n/a	n/a	n/a	n/a
DBPs	n/a	n/a	n/a	n/a	n/a

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

Current and future planned infrastructure and operational changes				
Project	**Description**	**Progress**	**Est. Delivery**	**Est. Spend**
N/A	N/A	N/A	N/A	N/A

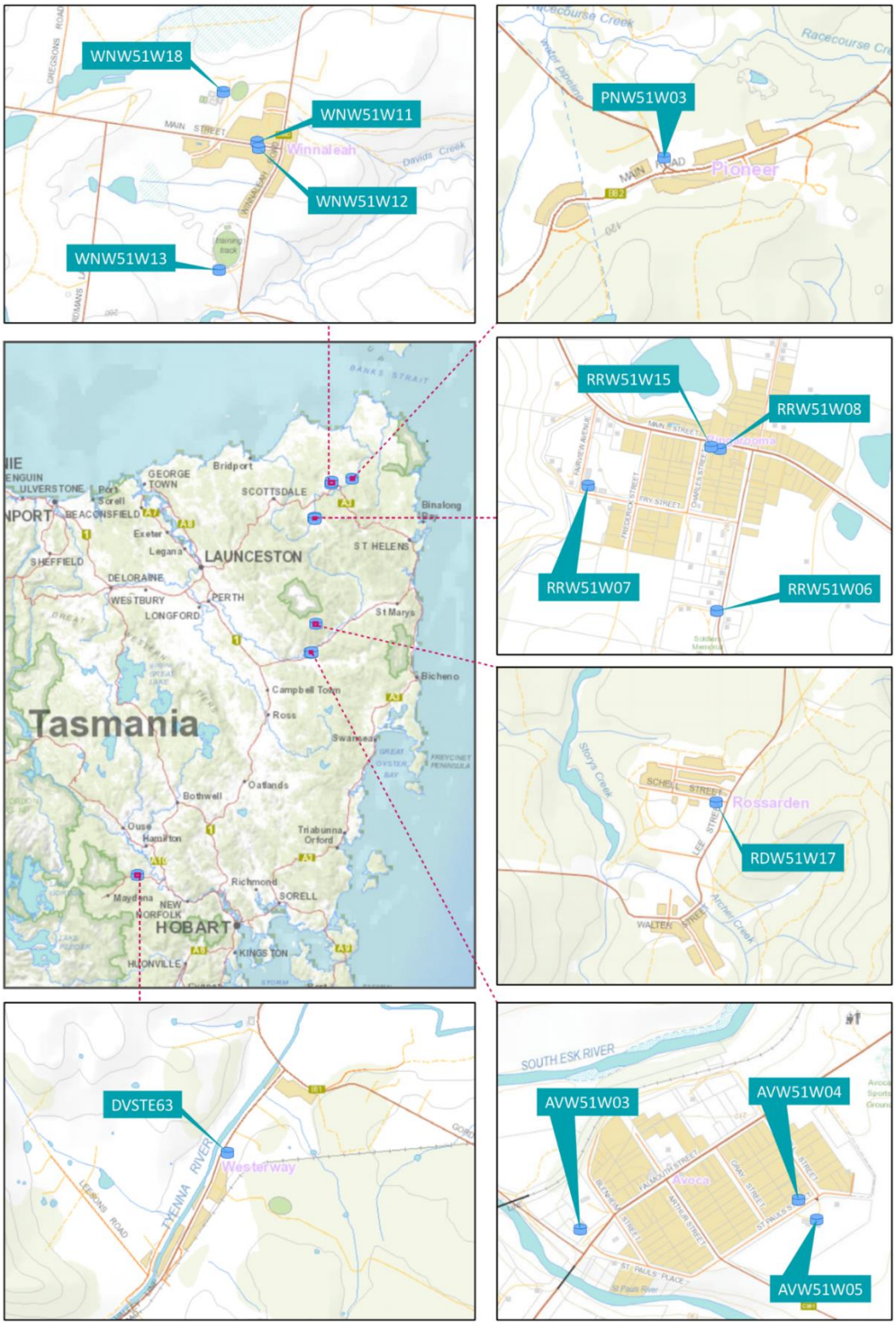


Figure 6.51.1-a Map of potable tank locations

6.51.2. Summary of Annual Reticulation Compliance (2016–17)

Table 6.51.2-a Compliance sampling program Avoca

Planned compliance sampling program (2016-17)								
Site name	Site Code	Micros	Metals	DBP	Fluoride (Field)	Fluoride (Lab)	Chemical Profile	Process Chemicals
Avoca/Tank 1 Town Hall	AVW51W03	W	n/a	n/a	n/a	n/a	n/a	n/a
Avoca/Tank 2 Firestation	AVW51W04	W	n/a	n/a	n/a	n/a	n/a	n/a
Avoca/Tank 3 School	AVW51W05	W	n/a	n/a	n/a	n/a	n/a	n/a
Number Planned Samples		156	**0**	**0**	**0**	**0**	**0**	**0**
Number Samples Tested		156	**0**	**0**	**0**	**0**	**0**	**0**

Table 6.51.2-b Compliance sampling program Pioneer

Planned compliance sampling program (2016-17)								
Site name	Site Code	Micros	Metals	DBP	Fluoride (Field)	Fluoride (Lab)	Chemical Profile	Process Chemicals
Pioneer/Race Course Road (Tank)	PNW51W03	W	n/a	n/a	n/a	n/a	n/a	n/a
Number Planned Samples		52	**0**	**0**	**0**	**0**	**0**	**0**
Number Samples Tested		52	**0**	**0**	**0**	**0**	**0**	**0**

Table 6.51.2-c Compliance sampling program Ringarooma

Planned compliance sampling program (2016-17)								
Site name	**Site Code**	**Micros**	**Metals**	**DBP**	**Fluoride (Field)**	**Fluoride (Lab)**	**Chemical Profile**	**Process Chemicals**
Ringarooma/Rec Ground (Tank)	RRW51W06	W	n/a	n/a	n/a	n/a	n/a	n/a
Ringarooma/School (Tank)	RRW51W07	W	n/a	n/a	n/a	n/a	n/a	n/a
Ringarooma/Pub (Tank)	RRW51W08	W	n/a	n/a	n/a	n/a	n/a	n/a
Ringarooma/Ringarooma Butchery (Tank)	RRW51W15	W	n/a	n/a	n/a	n/a	n/a	n/a
Number Planned Samples		208	**0**	**0**	**0**	**0**	**0**	**0**
Number Samples Tested		207	**0**	**0**	**0**	**0**	**0**	**0**

- No sample taken at RRW51W08 on 20/4/17 - Drained Tank

Table 6.51.2-d Compliance sampling program Rossarden

Planned compliance sampling program (2016-17)								
Site name	**Site Code**	**Micros**	**Metals**	**DBP**	**Fluoride (Field)**	**Fluoride (Lab)**	**Chemical Profile**	**Process Chemicals**
Rossarden/Lee St Potable Water Tank	RDW51W17	W	n/a	n/a	n/a	n/a	n/a	n/a
Number Planned Samples		52	**0**	**0**	**0**	**0**	**0**	**0**
Number Samples Tested		52	**0**	**0**	**0**	**0**	**0**	**0**

Table 6.51.2-e Compliance sampling program Westerway

Planned compliance sampling program (2016-17)								
Site name	Site Code	Micros	Metals	DBP	Fluoride (Field)	Fluoride (Lab)	Chemical Profile	Process Chemicals
Westerway Community Centre/Tank Westerway School	DVSTE63	W	n/a	n/a	n/a	n/a	n/a	n/a
Number Planned Samples		52	**0**	**0**	**0**	**0**	**0**	**0**
Number Samples Tested		34	**0**	**0**	**0**	**0**	**0**	**0**

- Tank installed from 10/11/2017

Table 6.51.2-f Compliance sampling program Winnaleah

Planned compliance sampling program (2016-17)								
Site name	Site Code	Micros	Metals	DBP	Fluoride (Field)	Fluoride (Lab)	Chemical Profile	Process Chemicals
Winnaleah/Located at Pub (Tank)	WNW51W11	W	n/a	n/a	n/a	n/a	n/a	n/a
Winnaleah/Opposite the Pub (Tank)	WNW51W12	W	n/a	n/a	n/a	n/a	n/a	n/a
Winnaleah/Recreation/Footy Ground (Tank)	WNW51W13	W	n/a	n/a	n/a	n/a	n/a	n/a
Winnaleah/School Tank	WNW51W18	W	n/a	n/a	n/a	n/a	n/a	n/a
Number Planned Samples		208	**0**	**0**	**0**	**0**	**0**	**0**
Number Samples Tested		207	**0**	**0**	**0**	**0**	**0**	**0**

- No Sample at WNW51W11 on 20/04/2017 – Drained tank

6.51.4. Analysis of current health performance (2016-17)

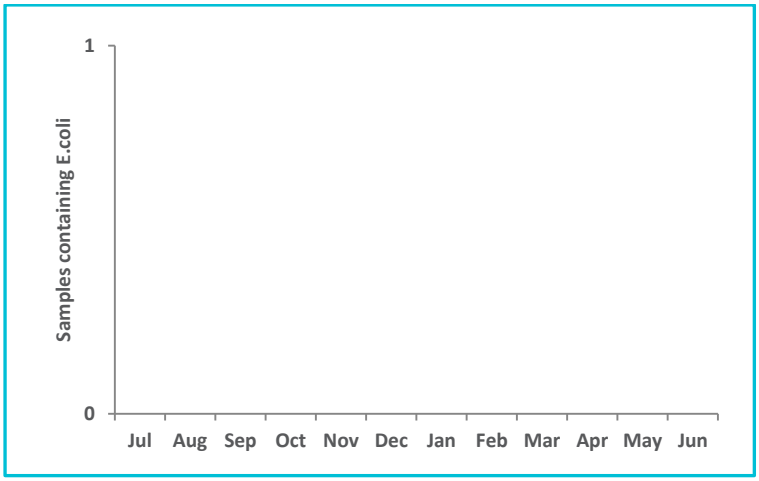


Figure 6.51.4-a Microbiological non-compliances by month (2016-17)

6.51.5. Analysis of overall system performance (2016-17)

Table 6.51.5-a General physical performance Potable Tanks

General physical parameters (2016-17)					
Parameter	**Unit**	**Guideline Value**	**Mean**	**Min**	**Max**
Chlorine residual	mg/L	0.1 - <0.8	0.3	0.0	2.2
Colour True	HU	15	Not tested	Not tested	Not tested
pH	Units	6.5 – 8.5	7.2	6.2	8.1
Turbidity	NTU	1	0.28	0.08	3.64

6.52. Queenstown drinking water system

6.52.1. Summary of system status

Queenstown drinking water system	
System status (as at 30 June 2017)	Potable
Total number of connections	1614
Fluoride	Sodium fluoride

Performance overview against health targets (2016-17)

Indicator	Outcome	Compliant	Target	Sampling Events	Non-conformances
Microbiological	100.0%	☑	98.0%	208	0
Fluoride	100.0%	☑	100.0%	104	0
Metals	100.0%	☑	100.0%	20	0
DBPs	100.0%	☑	100.0%	4	0

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

Overall system performance (2016-17)

Indicator	Occurrences	Details
Customer complaints	14	Discoloured water, taste & odour.
Public health warnings issued	0	
System incidents & issues	0	
Catchment and water source issues	0	

Current and future planned infrastructure and operational changes

Project	Description	Progress	Est. Delivery	Est. Spend
n/a	n/a	n/a	n/a	n/a

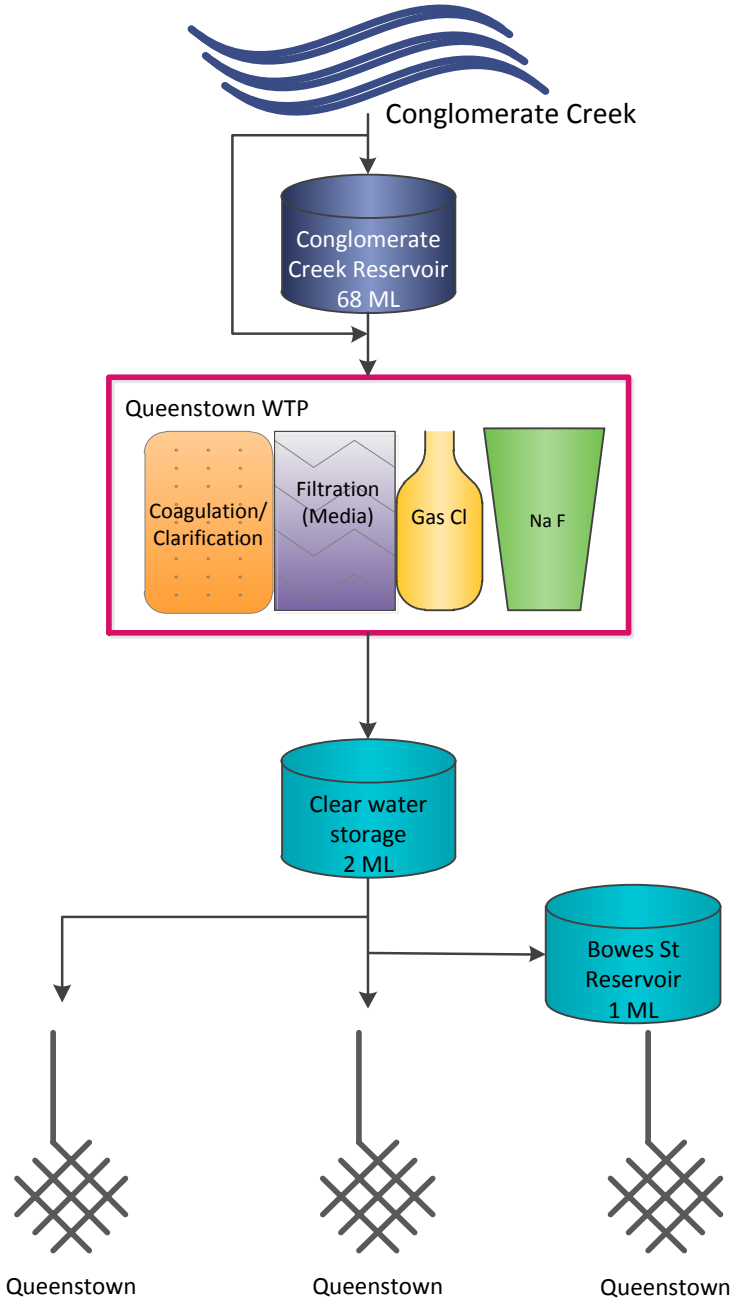


Figure 6.52.1-a Queenstown system schematic

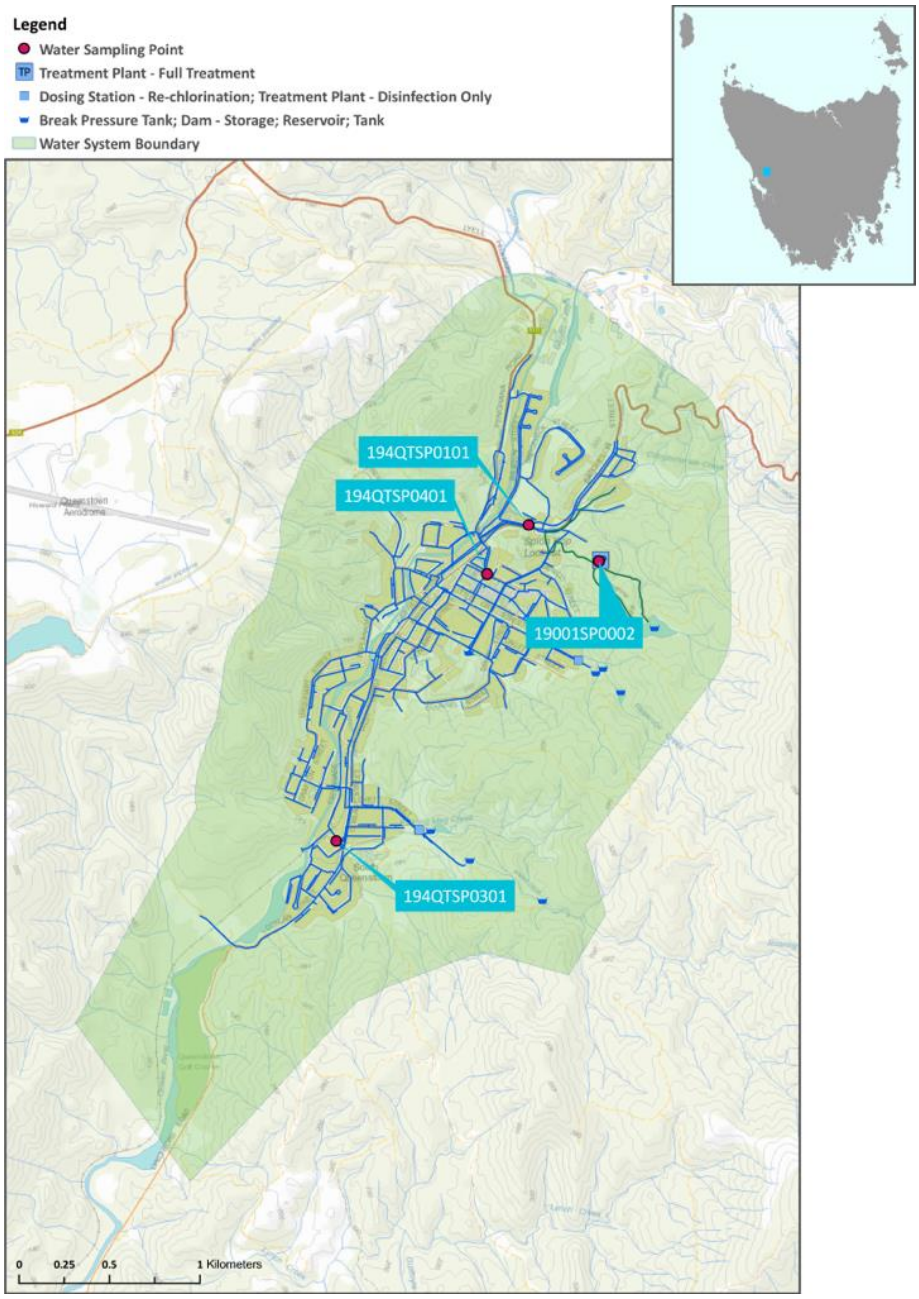


Figure 6.52.1-b Map of Queenstown monitoring system

6.52.2. Summary of Annual Reticulation Compliance (2016–17)

Table 6.52.2-a Compliance sampling program

Planned compliance sampling program (2016-17)								
Site name	**Site Code**	**Micros**	**Metals**	**DBP**	**Fluoride (Field)**	**Fluoride (Lab)**	**Chemical Profile**	**Process Chemicals**
Queenstown/WTP Treated Storage	19001SP0002	W	n/a	n/a	n/a	n/a	Q	M
Queenstown/Batchelor St Sample Point	194QTSP0101	W	Q	n/a	W	M	n/a	n/a
Queenstown/Murray St Sample Point	194QTSP0301	W	Q	Q	W	n/a	Q	n/a
Queenstown/Sticht St Sample Point	194QTSP0401	W	n/a	n/a	n/a	n/a	n/a	n/a
Number Planned Samples		**208**	**8**	**4**	**104**	**12**	**8**	**12**
Number Samples Tested		**208**	**8**	**4**	**104**	**12**	**8**	**12**

6.52.3. Summary of current and historic performance (2012-17)

Table 6.52.3-a Historical health performance overview (5 year comparison)

Historical health performance overview (5 year comparison)					
Indicator	**2012-13**	**2013-14**	**2014-15**	**2015-16**	**2016-17**
Microbiological	99.5%	99.5%	99.5%	100.0%	100.0%
Fluoride	n/a	n/a	100.0%	100.0%	100.0%
Metals	n/a	100.0%	100.0%	100.0%	100.0%
Disinfection by products	n/a	100.0%	100.0%	100.0%	100.0%

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

Table 6.52.3-b Distribution fluoride testing overview (5 year comparison)

Distribution fluoride testing overview (5 year comparison)					
Indicator	**2012-13**	**2013-14**	**2014-15**	**2015-16**	**2016-17**
Exceeding 1.5 mg/L	n/a	n/a	0	0	0
Within target range (%)	n/a	n/a	84.6%	97.1%	98.1%
Mean dose (mg/L)	n/a	n/a	0.93	1.0	1.0

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

6.52.4. Analysis of current health performance (2016-17)

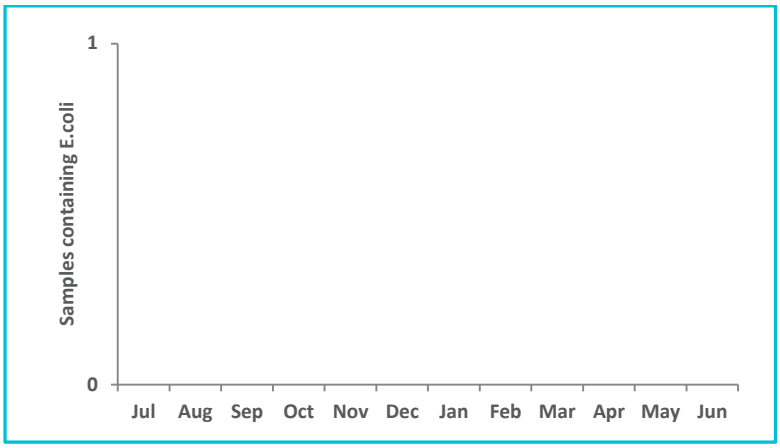


Figure 6.52.4-a Microbiological non-compliances by month (2016-17)

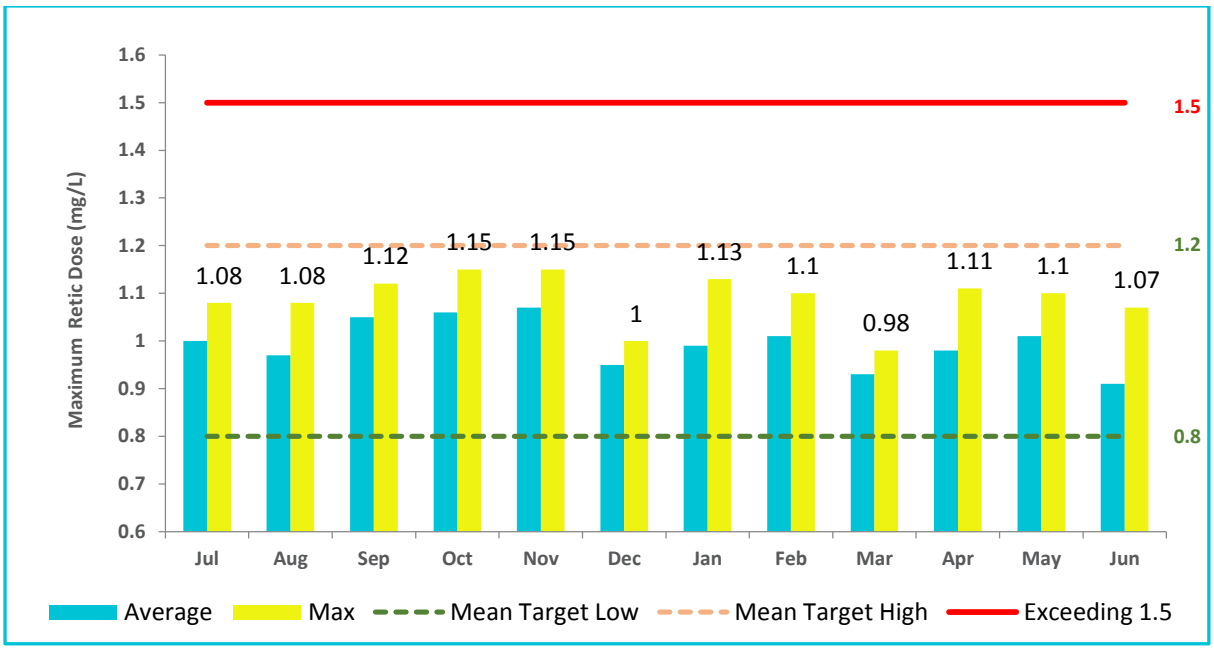


Figure 6.52.4-b Average reticulation fluoride dose by month (2016-17)

Table 6.52.4-a Metals performance 2016-17

Metals – health regulated parameters (2016–17)								
Parameter	Limit	Unit	Samples	Exceedances	Performance %	Mean	Min.	Max.
Antimony	0.003	mg/L	8	0	100	<0.0005	<0.0005	<0.0005
Arsenic	0.01	mg/L	20	0	100	0.00071	0.0003	<0.001
Barium	2	mg/L	20	0	100	0.0202	0.013	0.0246
Cadmium	0.002	mg/L	20	0	100	0.0001	<0.0001	0.0002
Chromium	0.05	mg/L	20	0	100	0.0005	<0.0001	<0.001
Copper	2	mg/L	8	0	100	0.006	0.0041	0.008
Lead	0.01	mg/L	20	0	100	0.0003	<0.0001	<0.0005
Manganese	0.5	mg/L	20	0	100	0.0105	0.0016	0.0484
Mercury	0.001	mg/L	20	0	100	0.00006	<0.00003	0.00013
Molybdenum	0.05	mg/L	8	0	100	0.0003	<0.0001	<0.0005
Nickel	0.02	mg/L	20	0	100	0.0006	<0.0001	0.0036
Selenium	0.01	mg/L	20	0	100	0.00096	<0.0001	<0.002

Table 6.52.4-b Disinfection by product performance 2016-17

Disinfection by products – health regulated parameters (2016–17)								
Parameter	Limit	Unit	Samples	Exceedances	Performance %	Mean	Min.	Max.
Dichloroacetic acid	100	µg/L	4	0	100	38.25	18	58
Monochloroacetic acid	150	µg/L	4	0	100	3	3	<5
Trichloroacetic acid	100	µg/L	4	0	100	54.25	19	74
Total trihalomethanes	250	µg/L	4	0	100	116	84	146

6.52.5. Analysis of overall system performance (2016-17)

Table 6.52.5-a General physical performance 2016-17

General physical parameters (2016-17)					
Parameter	**Unit**	**Guideline Value**	**Mean**	**Min**	**Max**
Chlorine residual	mg/L	0.1 - <0.8			
Colour True	HU	15			
pH	Units	6.5 – 8.5			
Turbidity	NTU	1			

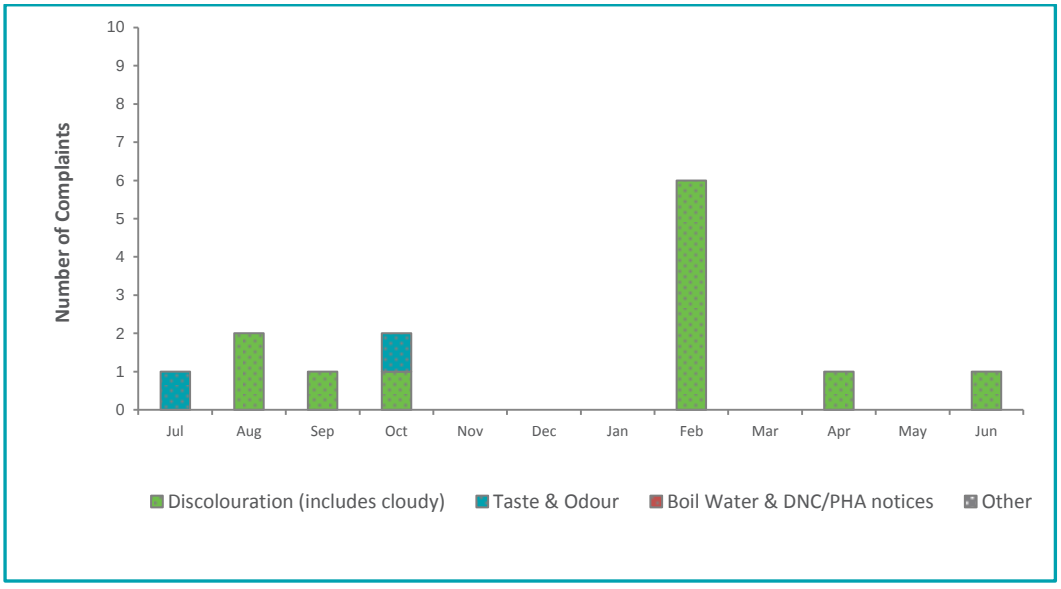


Figure 6.52.5-a Customer complaints by month and type

6.53. Ringarooma drinking water system

6.53.1. Summary of system status

Ringarooma drinking water system	
System status (as at 30 June 2017)	BWA
Total number of connections	191
Fluoride	n/a

Performance overview against health targets (2016-17)

Indicator	Outcome	Compliant	Target	Sampling Events	Non-conformances
Microbiological	50.0%	☒	98.0%	24	12
Fluoride	n/a	n/a	n/a	n/a	n/a
Metals	100.0%	☑	100.0%	16	0
DBPs	n/a	n/a	n/a	n/a	n/a

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

Overall system performance (2016-17)

Indicator	Occurrences	Details
Customer complaints	4	Discoloured water, Boil water & DNC alert.
Public health warnings issued	0	
System incidents & issues	12	*E. coli* exceedances.
Catchment and water source issues	2	Trace levels of pesticides were collected in the catchment. All results were well below the ADWG health limits.

Current and future planned infrastructure and operational changes

Project	Description	Progress	Est. Delivery	Est. Spend ($'000)
Ringarooma Valley Scheme	New WTP at Ringarooma to supply the communities of Ringarooma, Legerwood, Branxholm, Derby and Winnaleah.	Commissioning	FY17/18	$124.82

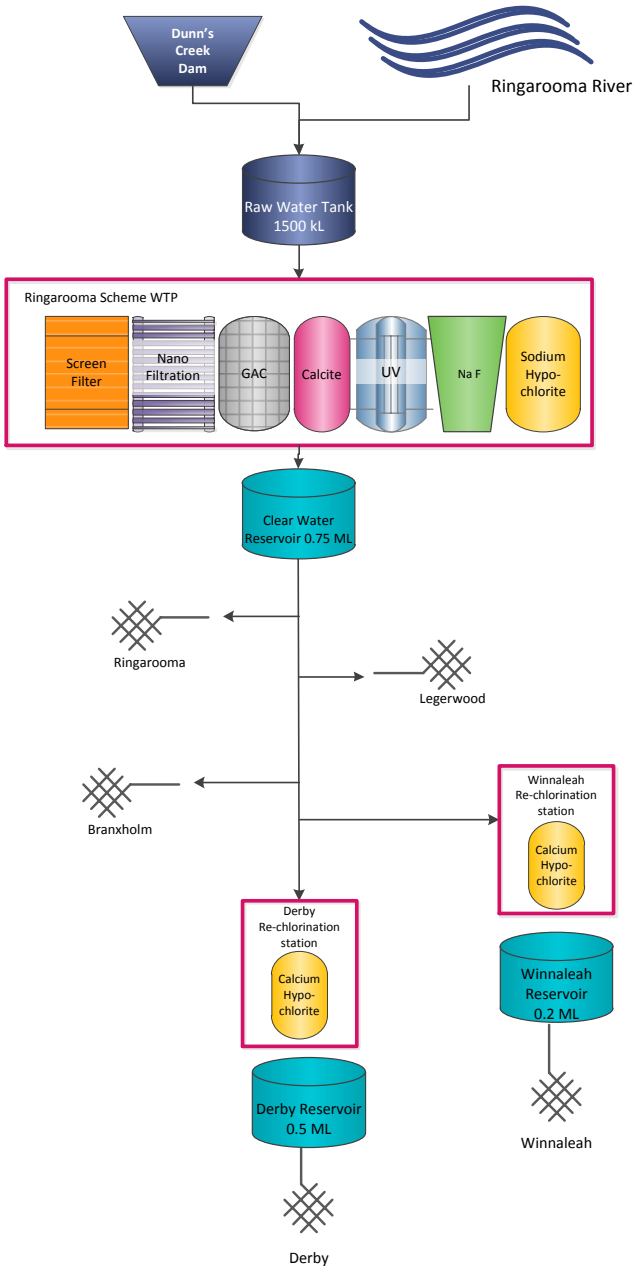


Figure 6.53.1-a Ringarooma system schematic

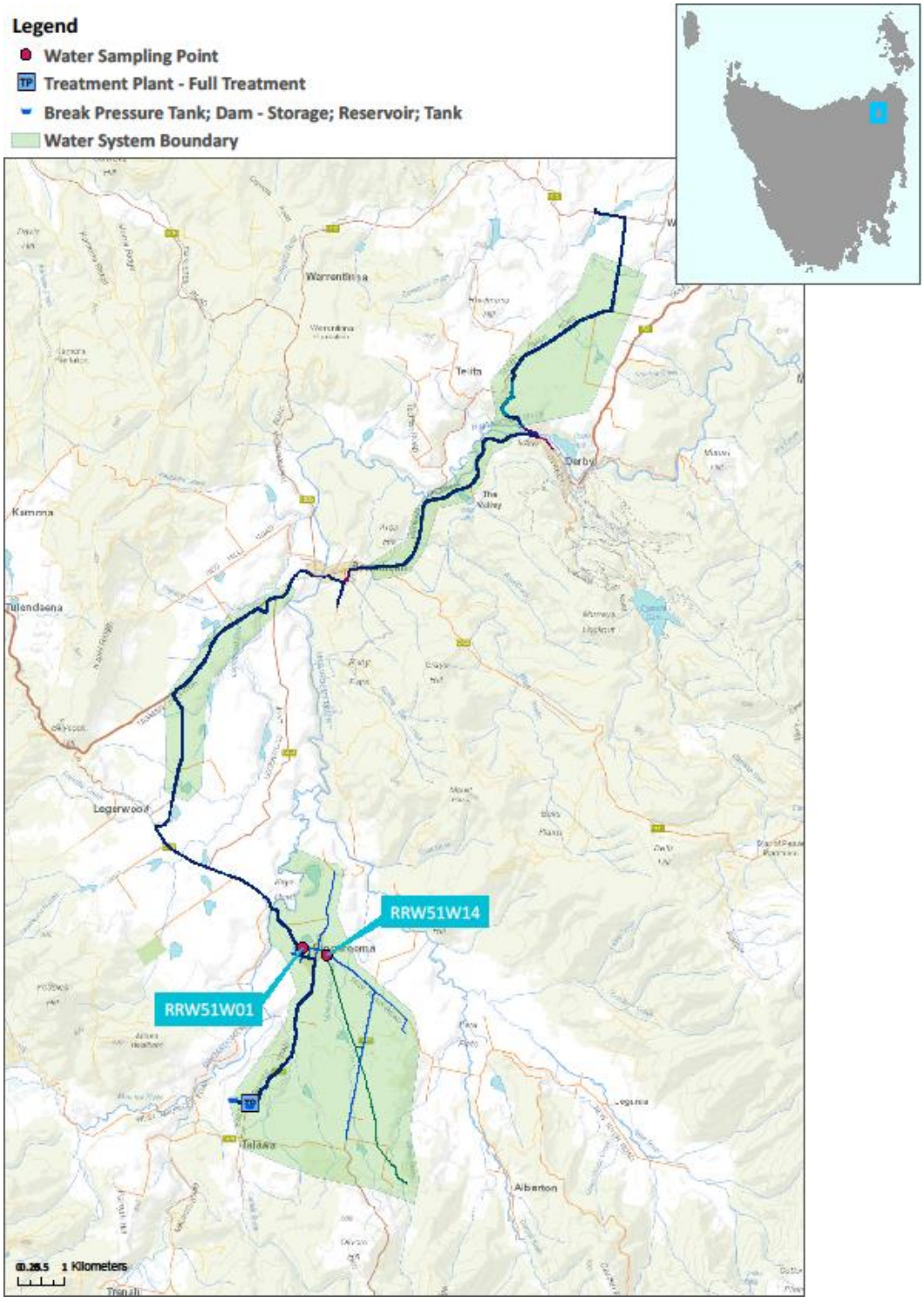


Figure 6.53.1-b Map of Ringarooma monitoring system

6.53.2. Summary of Annual Reticulation Compliance (2016–17)

Table 6.53.2-a Compliance sampling program

Planned compliance sampling program (2016-17)								
Site name	Site Code	Micros	Metals	DBP	Fluoride (Field)	Fluoride (Lab)	Chemical Profile	Process Chemicals
Ringarooma/Opposite Police Station	RRW51W01	M	M	n/a	n/a	n/a	M	n/a
Ringarooma/PRV Main Street	RRW51W14	M	Q	n/a	n/a	n/a	Q	n/a
Number Planned Samples		**24**	**16**	**0**	**0**	**0**	**16**	**0**
Number Samples Tested		**24**	**16**	**0**	**0**	**0**	**16**	**0**

6.53.3. Summary of current and historic performance (2012-17)

Table 6.53.3-a Historical health performance overview (5 year comparison)

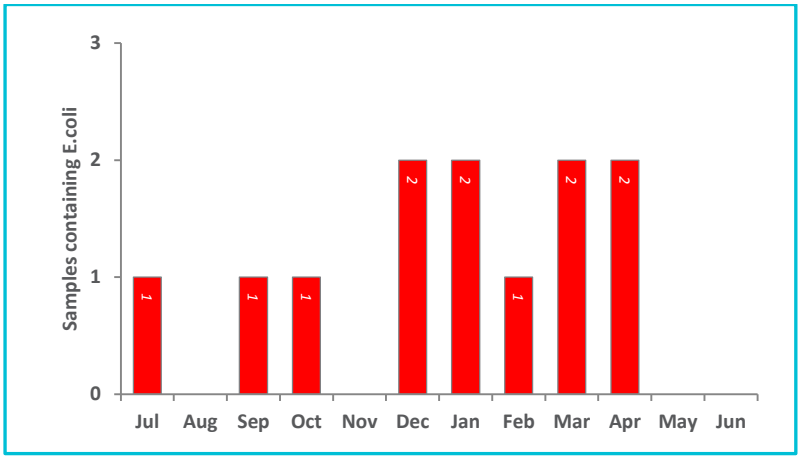
Historical health performance overview (5 year comparison)					
Indicator	2012-13	2013-14	2014-15	2015-16	2016-17
Microbiological	33.0%	14.0%	0.0%	0.0%	50.0%
Fluoride	n/a	n/a	n/a	n/a	n/a
Metals	95.0%	98.0%	100.0%	100.0%	100.0%
Disinfection by products	n/a	n/a	n/a	n/a	n/a

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

6.53.4. Analysis of current health performance (2016-17)

Figure 6.53.4-a Microbiological non-compliances by month (2016-17)



- Poor microbiological performance can be attributed to a lack of barriers and the susceptibility to changes in quality from the Ringarooma River.
- The risk to public health is mitigated through the communication of the Permanent BWA to customers.

Table 6.53.4-a Metals performance 2016-17

Metals – health regulated parameters (2016–17)								
Parameter	Limit	Unit	Samples	Exceedances	Performance %	Mean	Min.	Max.
Antimony	0.003	mg/L	16	0	100	0.0005	<0.0005	0.0006
Arsenic	0.01	mg/L	16	0	100	0.0006	<0.0003	0.001
Barium	2	mg/L	16	0	100	0.007	0.001	0.016
Cadmium	0.002	mg/L	16	0	100	0.0001	<0.0001	0.0002
Chromium	0.05	mg/L	16	0	100	0.0005	<0.0001	0.001
Copper	2	mg/L	16	0	100	0.0268	0.0004	0.15
Lead	0.01	mg/L	16	0	100	0.0024	<0.0001	0.0095
Manganese	0.5	mg/L	16	0	100	0.0196	0.001	0.104
Mercury	0.001	mg/L	16	0	100	0.00005	<0.00003	0.0002
Molybdenum	0.05	mg/L	16	0	100	0.0003	<0.0001	0.0005
Nickel	0.02	mg/L	16	0	100	0.0005	<0.0001	0.0014

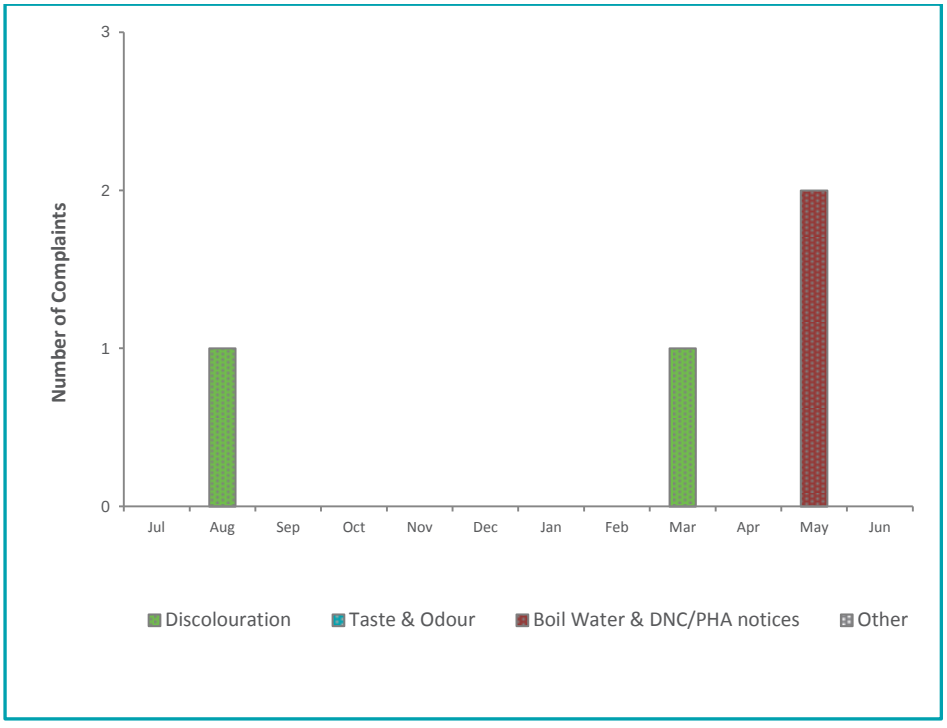
Selenium	0.01	mg/L	16	0	100	0.0008	<0.0001	0.002

6.53.5. Analysis of overall system performance (2016-17)

Table 6.53.5-a General physical performance 2016-17

General physical parameters (2016-17)					
Parameter	**Unit**	**Guideline Value**	**Mean**	**Min**	**Max**
Chlorine residual	mg/L	0.1 - <0.8	0.50	0.13	0.79
Colour True	HU	15	25	<1	45
pH	Units	6.5 – 8.5	7.20	5.64	9.34
Turbidity	NTU	1	1.77	0.21	23.5

Figure 6.53.5-a Customer complaints by month and type



6.54. Rocky Creek drinking water system

6.54.1. System summary (2016-17)

Rocky Creek drinking water system	
System status (as at 30 June 2017)	BWA
Total number of connections	488
Fluoride	Sodium fluoride

Performance overview against health targets (2016-17)

Indicator	Outcome	Compliant	Target	Sampling Events	Non-conformances
Microbiological	100.0%	☑	98.0%	52	0
Fluoride	100.0%	☑	100.0%	104	0
Metals	100.0%	☑	100.0%	4	0
DBPs	100.0%	☑	100.0%	12	0

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

Overall system performance (2016-17)

Indicator	Occurrences	Details
Customer complaints	49	Discoloured water, taste & odour, boil water & DNC alert, other (cloudy).
Public health warnings issued	0	
System incidents & issues	1	Low fluoride in retic
Catchment and water source issues	0	

Current and future planned infrastructure and operational changes

Project	Description	Progress	Est. Delivery	Est. Spend ($'000)
Rocky Creek WTP	Treated water to the community of Rocky Creek.	Tender	FY17/18	$3,979.60

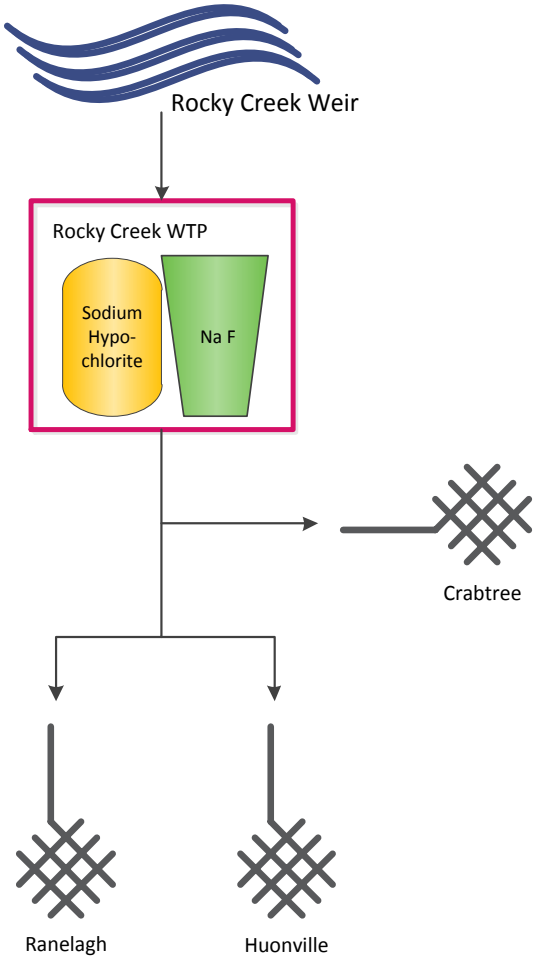


Figure 6.54.1-a Rocky Creek system schematic

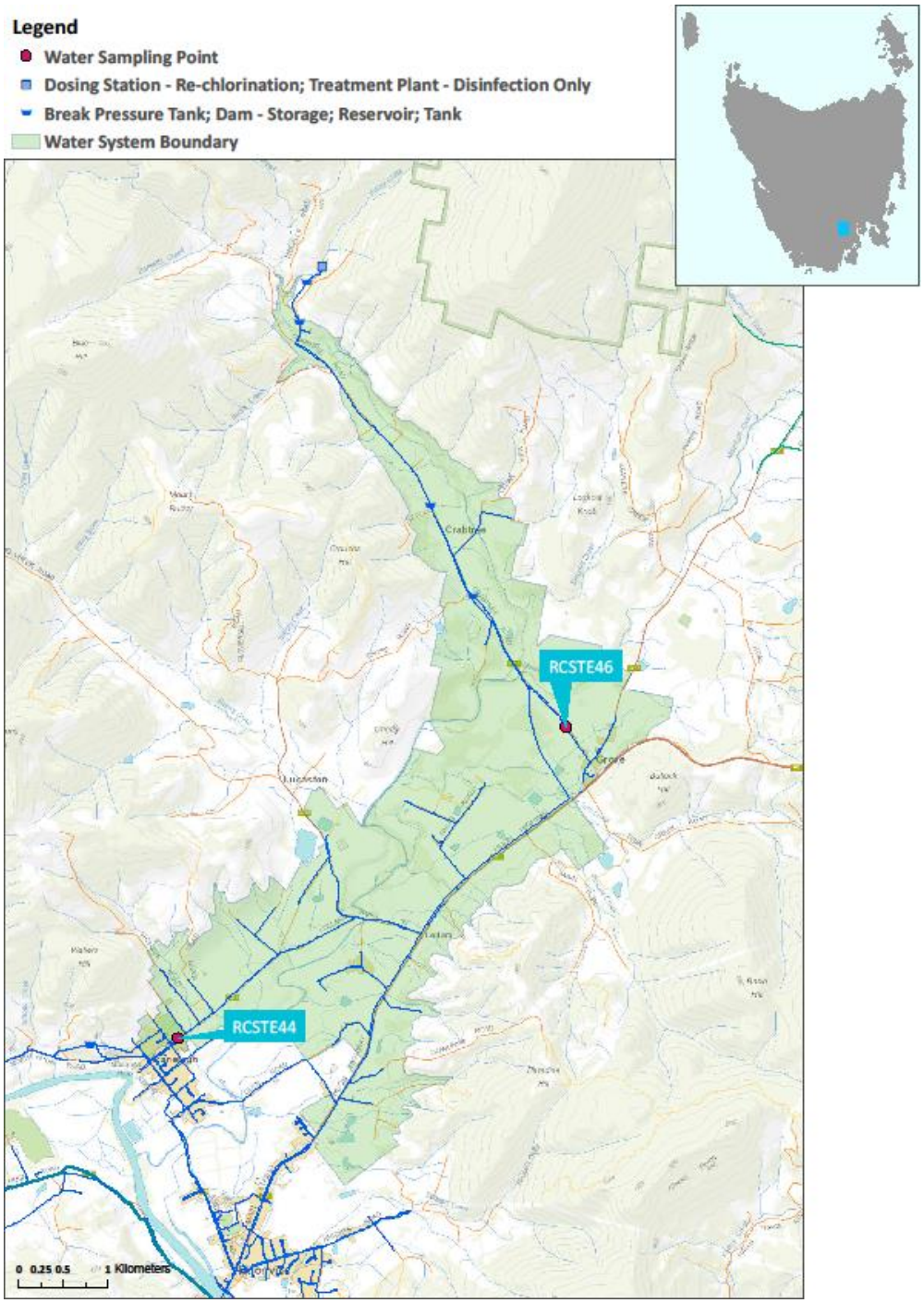


Figure 6.54.1-b Map of Rocky Creek monitoring system

6.54.2. Summary of Annual Reticulation Compliance (2016–17)

Table 6.54.2-a Compliance sampling program

Planned compliance sampling program (2016-17)								
Site name	Site Code	Micros	Metals	DBP	Fluoride (Field)	Fluoride (Lab)	Chemical Profile	Process Chemicals
Ranelagh Showgrounds/Sample Tap	RCSTE44	W	Q	M	W	M	Q	n/a
Ranelagh/Grove Fire Station	RCSTE46	n/a	n/a	n/a	W	n/a	n/a	n/a
Number Planned Samples		**52**	**4**	**12**	**104**	**12**	**4**	**0**
Number Samples Tested		**52**	**4**	**12**	**104**	**12**	**4**	**0**

6.54.3. Summary of current and historic performance (2012-17)

Table 6.54.3-a Historical health performance overview (5 year comparison)

Historical health performance overview (5 year comparison)					
Indicator	2012-13	2013-14	2014-15	2015-16	2016-17
Microbiological	100.0%	99.5%	100.0%	98.1%	100.0%
Fluoride	100.0%	100.0%	100.0%	100.0%	100.0%
Metals	100.0%	100.0%	100.0%	100.0%	100.0%
Disinfection by products	100.0%	100.0%	100.0%	100.0%	100.0%

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

Table 6.54.3-b Distribution fluoride testing overview (5 year comparison)

Distribution fluoride testing overview (5 year comparison)					
Indicator	**2012-13**	**2013-14**	**2014-15**	**2015-16**	**2016-17**
Exceeding 1.5 mg/L	0	0	0	0	0
Within target range (%)	Not Required	Not Required	78.8%	84.0%	81.4%
Mean dose (mg/L)	Not Required	Not Required	1.06	0.93	0.92

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

6.54.4. Analysis of current health performance (2016-17)

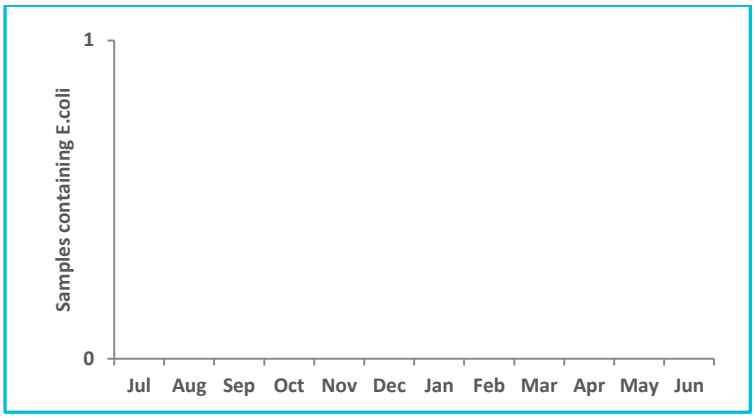


Figure 6.54.4-a Microbiological non-compliances by month (2016-17)

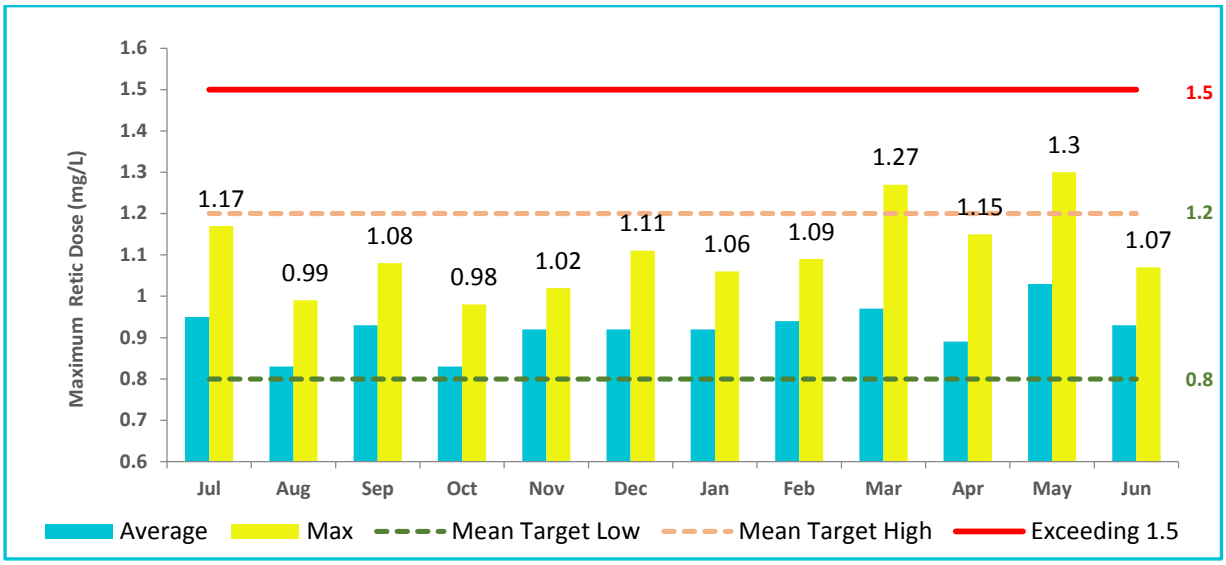


Figure 6.54.4-b Average reticulation fluoride dose by month (2016-17)

Table 6.54.4-a Metals performance 2016-17

Metals – health regulated parameters (2016–17)								
Parameter	**Limit**	**Unit**	**Samples**	**Exceedances**	**Performance %**	**Mean**	**Min.**	**Max.**
Antimony	0.003	mg/L	4	0	100	<0.0005	<0.0005	<0.0005
Arsenic	0.01	mg/L	4	0	100	0.0005	<0.0003	<0.001
Barium	2	mg/L	4	0	100	0.0016	0.001	0.0021
Cadmium	0.002	mg/L	4	0	100	<0.0001	<0.0001	<0.00001
Chromium	0.05	mg/L	4	0	100	0.0004	0.0001	<0.001
Copper	2	mg/L	4	0	100	0.0038	0.003	0.0044
Lead	0.01	mg/L	4	0	100	0.0003	0.0001	<0.0005
Manganese	0.5	mg/L	4	0	100	0.0008	0.0007	<0.001
Mercury	0.001	mg/L	4	0	100	0.00004	<0.00003	<0.00005
Molybdenum	0.05	mg/L	4	0	100	0.0002	<0.0001	<0.0005
Nickel	0.02	mg/L	4	0	100	0.0002	<0.0001	<0.0005
Selenium	0.01	mg/L	4	0	100	0.0006	<0.0001	<0.002

Table 6.54.4-b Disinfection by product performance 2016-17

Disinfection by products – health regulated parameters (2016–17)								
Parameter	Limit	Unit	Samples	Exceedances	Performance %	Mean	Min.	Max.
Dichloroacetic acid	100	µg/L	12	0	100	0.79	<1	2
Monochloroacetic acid	150	µg/L	12	0	100	<5	<3	<5
Trichloroacetic acid	100	µg/L	12	0	100	<2	<1	<2
Total trihalomethanes	250	µg/L	12	0	100	22.75	11	37

6.54.5. Analysis of overall system performance (2016-17)

Table 6.54.5-a General physical performance 2016-17

General physical parameters (2016-17)					
Parameter	Unit	Guideline Value	Mean	Min	Max
Chlorine residual	mg/L	0.1 - <0.8	0.04	0.01	0.09
Colour True	HU	15	4.3	3	6
pH	Units	6.5 – 8.5	6.91	5.73	7.91
Turbidity	NTU	1	0.77	0.40	3.77

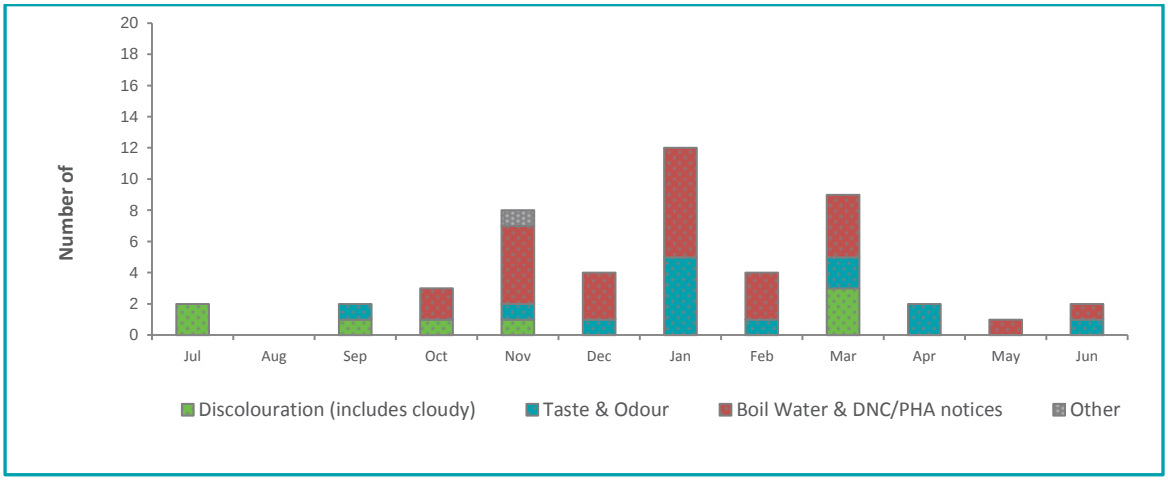


Figure 6.54.5-a Customer complaints by month and type

6.55. Rosebery drinking water system

6.55.1. Summary of system status

Rosebery drinking water system	
System status (as at 30 June 2017)	Potable
Total number of connections	734
Fluoride	Sodium fluoride

Performance overview against health targets (2016-17)

Indicator	Outcome	Compliant	Target	Sampling Events	Non-conformances
Microbiological	100.0%	☑	98.0%	208	0
Fluoride	100.0%	☑	100.0%	102	0
Metals	99.9%	☒	100.0%	302	1
DBPs	100.0%	☑	100.0%	15	0

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

Overall system performance (2016-17)

Indicator	Occurrences	Details
Customer complaints	23	Discoloured water, taste & odour.
Public health warnings issued	0	
System incidents & issues	1	Metal exceedance.
Catchment and water source issues	0	

Current and future planned infrastructure and operational changes

Project	Description	Progress	Est. Delivery	Est. Spend ($'000)
Rosebery WTP	New WTP to supply Rosebery community.	Commissioning	FY17/18	$159.14

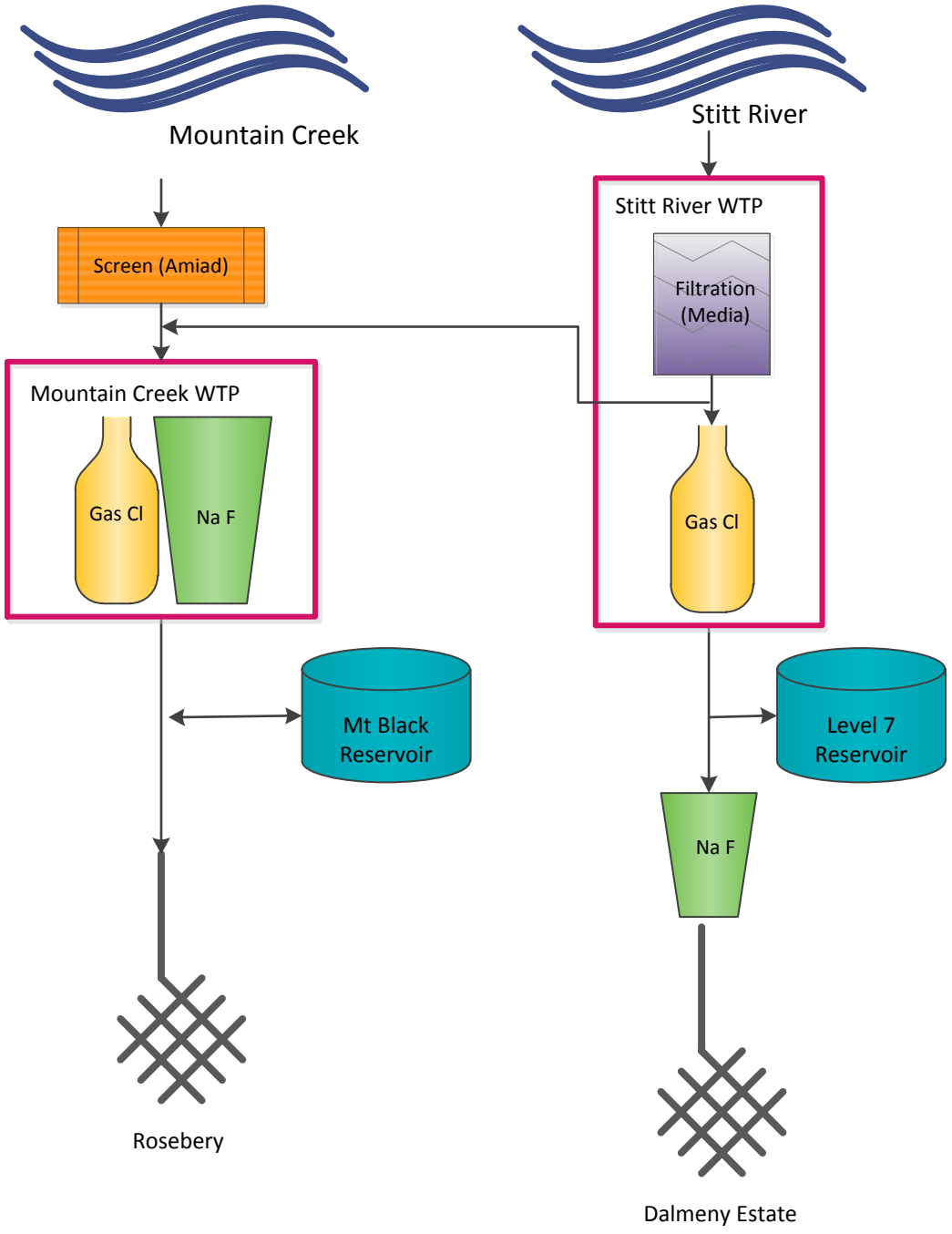


Figure 6.55.1-a Roseberry system schematic

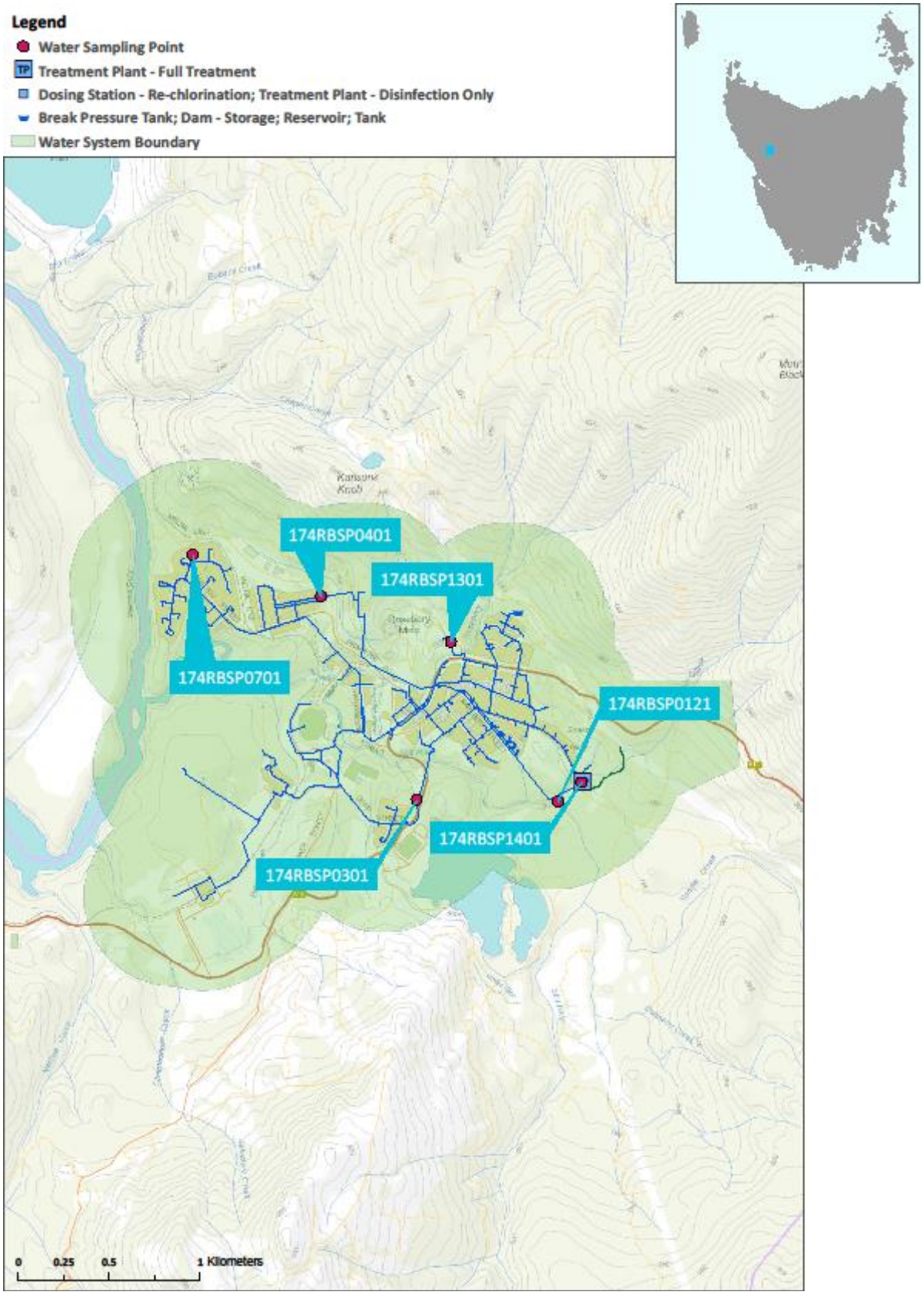


Figure 6.55.1-b Map of Roseberry monitoring system

6.55.2. Summary of Annual Reticulation Compliance (2016–17)

Table 6.55.2-a Compliance sampling program

Planned compliance sampling program (2016-17)								
Site name	Site Code	Micros	Metals	DBP	Fluoride (Field)	Fluoride (Lab)	Chemical Profile	Process Chemicals
Rosebery/Stitt Post Filtration	174RBSP0121	n/a	W	n/a	n/a	n/a	n/a	n/a
Rosebery/Murchison Highway Tap Behind Public Toilets	174RBSP0301	W	W	Q	W	n/a	Q	n/a
Rosebery/Howard St Sample Point	174RBSP0401	W	W	n/a	n/a	n/a	n/a	n/a
Rosebery/Blackwood St Sample Point	174RBSP0701	W	W	M	W	M	Q	n/a
Rosebery/Rear of Hospital	174RBSP1301	W	W	n/a	n/a	n/a	n/a	n/a
Rosebery/Mountain Creek Post Chlorination	174RBSP1401	n/a	W	n/a	n/a	n/a	n/a	n/a
Number Planned Samples		**208**	**312**	**16**	**104**	**12**	**8**	**0**
Number Samples Tested		**208**	**302#**	**15***	**102**	**12**	**8**	**0**

- # Metals sampling missed on 7/3/17 and 21/3/17 for site 174RBSP1401: Rosebery/Mountain Creek Post Chlorination due to site inaccessibility. Metals sampling missed on 27/6/17 for site 174RBSP0701: Blackwood St Sample Point due to sampling error. Metals sampling missed on 4/10/16, 15/5/17, 22/5/17, 29/5/17, 13/6/17, 20/6/17 and 26/7/16 for site 174RBSP0121: Rosebery/Stitt Post Filtration due to sampling error.

- * DBP monthly testing missed in May 2017 for site 174RBSP0701: Rosebery/Blackwood St Sample Point due to sampling error.

6.55.3. Summary of current and historic performance (2012-17)

Table 6.55.3-a Historical health performance overview (5 year comparison)

Historical health performance overview (5 year comparison)					
Indicator	**2012-13**	**2013-14**	**2014-15**	**2015-16**	**2016-17**
Microbiological	100.0%	100.0%	99.6%	99.1%	100.0%
Fluoride	n/a	n/a	100.0%	100.0%	100.0%
Metals	n/a	99.0%	99.6%	99.9%	99.9%
Disinfection by products	n/a	97.0%	95.4%	97.1%	100.0%

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

Table 6.55.3-b Distribution fluoride testing overview (5 year comparison) – Rosebery Howard Street

Distribution fluoride testing overview (5 year comparison)					
Indicator	**2012-13**	**2013-14**	**2014-15**	**2015-16**	**2016-17**
Exceeding 1.5 mg/L	n/a	Off	0	0	0
Within target range (%)	n/a	Off	80.0%	79.4%	84.3%
Mean dose (mg/L)	n/a	Off	0.84	0.89	0.82

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

Table 6.55.3-c Distribution fluoride testing overview (5 year comparison) – Rosebery Stirling Valley

Distribution fluoride testing overview (5 year comparison)					
Indicator	**2012-13**	**2013-14**	**2014-15**	**2015-16**	**2016-17**
Exceeding 1.5 mg/L	n/a	Off	0	0	0
Within target range (%)	n/a	Off	79.0%	73.7%	90.2
Mean dose (mg/L)	n/a	Off	0.81	0.99	0.84

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

6.55.4. Analysis of current health performance (2016-17)

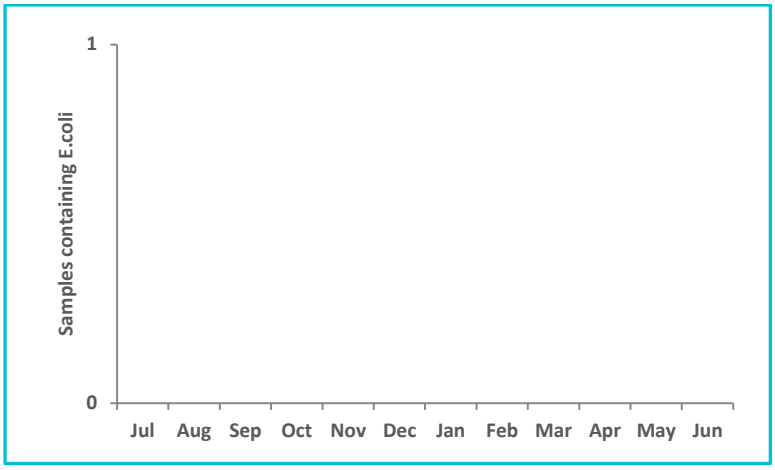


Figure 6.55.4-a Microbiological non-compliances by month (2016-17)

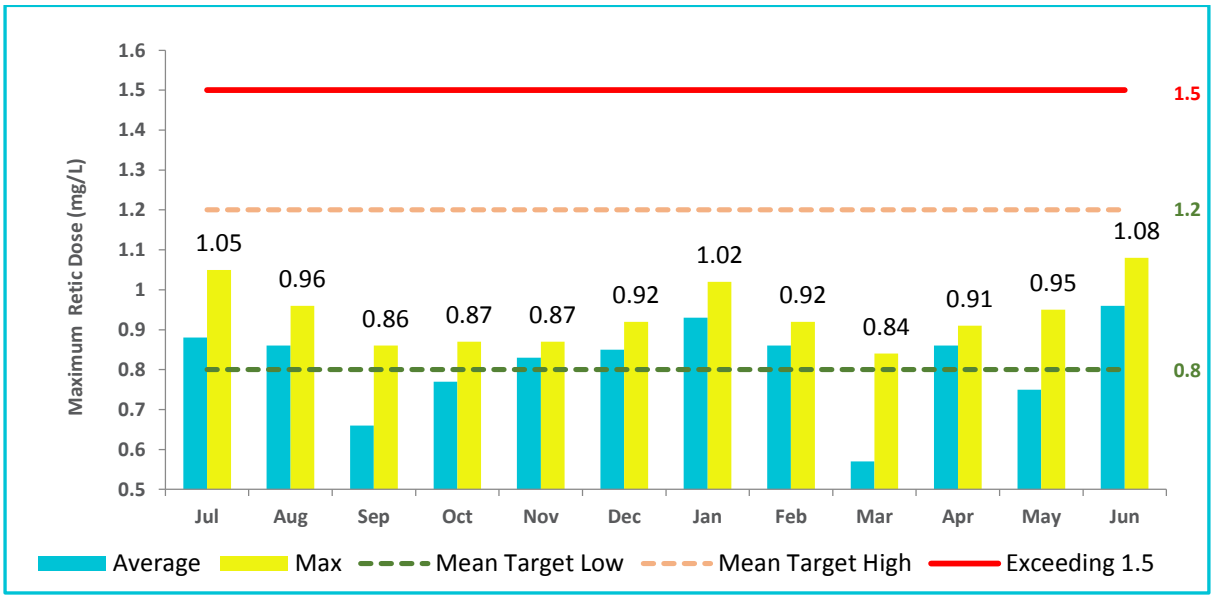


Figure 6.55.4-b Average reticulation fluoride dose by month (2016-17) – Rosebery Howard Street

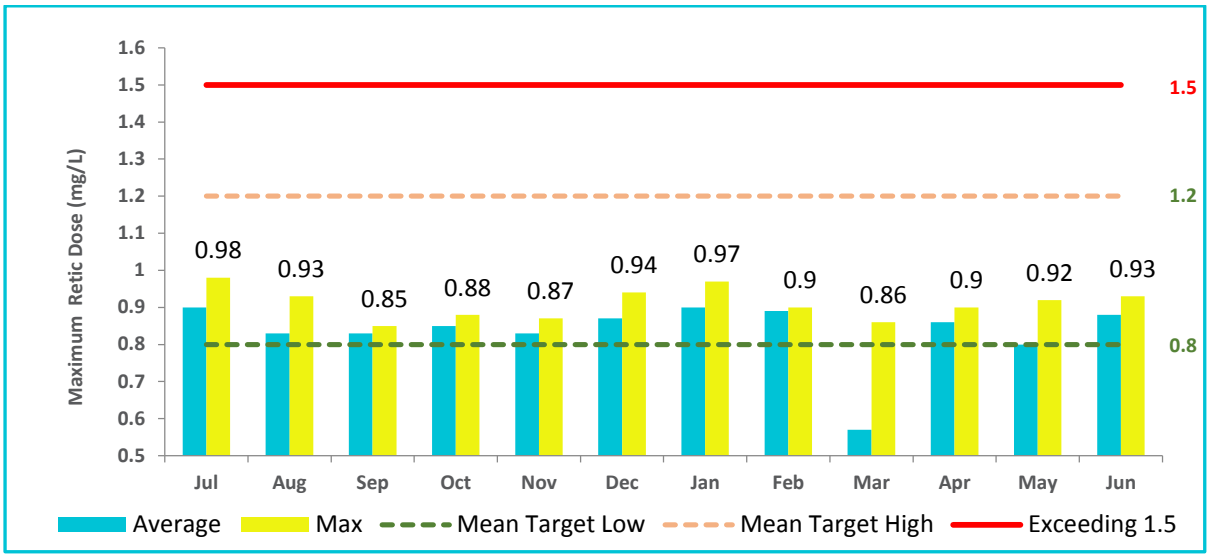


Figure 6.55.4-c Average reticulation fluoride dose by month (2016-17) – Rosebery Stirling Valley

Table 6.55.4-a Metals performance 2016-17

Metals – health regulated parameters (2016–17)								
Parameter	Limit	Unit	Samples	Exceedances	Performance %	Mean	Min.	Max.
Antimony	0.003	mg/L	302	0	100	0.0005	<0.0005	0.0013
Arsenic	0.01	mg/L	302	0	100	0.0006	<0.0003	0.003
Barium	2	mg/L	302	0	100	0.0054	0.002	0.0232
Cadmium	0.002	mg/L	302	0	100	0.0001	<0.0001	0.002
Chromium	0.05	mg/L	302	0	100	0.0005	<0.0001	0.007
Copper	2	mg/L	302	0	100	0.0267	<0.0001	0.149
Lead	0.01	mg/L	302	1	99.7	0.0011	0.0001	0.015
Manganese	0.5	mg/L	302	0	100	0.0113	0.0014	0.4596
Mercury	0.001	mg/L	296	0	100	0.00006	<0.00003	0.00027
Molybdenum	0.05	mg/L	302	0	100	0.0003	<0.0001	0.001
Nickel	0.02	mg/L	302	0	100	0.0003	<0.0001	0.0069
Selenium	0.01	mg/L	302	0	100	0.001	<0.0001	0.0062

- One metal detection for Lead was above ADWG health limits. Flushing of system was performed and resample was clear.

Table 6.55.4-b Disinfection by product performance 2016-17

Disinfection by products – health regulated parameters (2016–17)								
Parameter	Limit	Unit	Samples	Exceedances	Performance %	Mean	Min.	Max.
Dichloroacetic acid	100	µg/L	15	0	100	34	15	93
Monochloroacetic acid	150	µg/L	15	0	100	2.43	<3	6
Trichloroacetic acid	100	µg/L	15	0	100	23.8	5	66
Total trihalomethanes	250	µg/L	15	0	100	22.12	2.7	63

- * DBP monthly testing missed in May 2017 for site 174RBSP0701: Rosebery/Blackwood St Sample Point due to sampling error.

6.55.5. Analysis of overall system performance (2016-17)

Table 6.55.5-a General physical performance 2016-17

General physical parameters (2016-17)					
Parameter	Unit	Guideline Value	Mean	Min	Max
Chlorine residual	mg/L	0.1 - <0.8	0.68	0.0	3.23
Colour True	HU	15	11.3	4	19
pH	Units	6.5 – 8.5	6.76	6.32	7.70
Turbidity	NTU	1	1.03	0.19	5.84

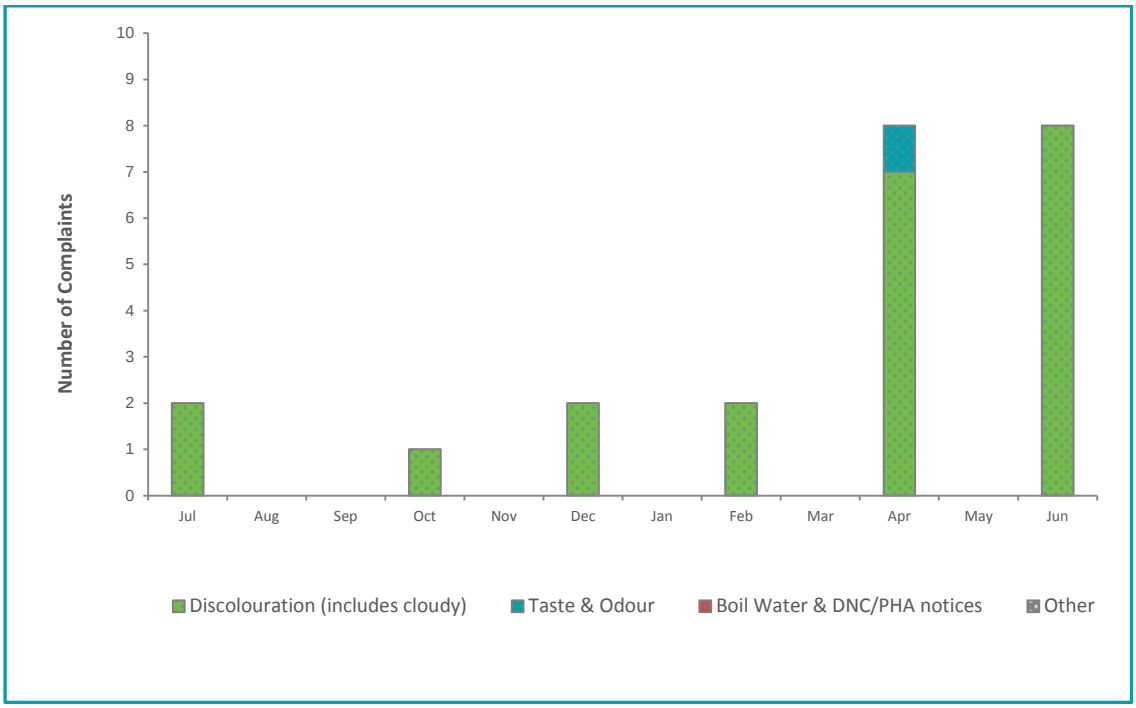


Figure 6.55.5-a Customer complaints by month and type

6.56. Rossarden drinking water system

6.56.1. Summary of system status

Rossarden drinking water system	
System status (as at 30 June 2017)	DNC
Total number of connections	127
Fluoride	n/a

Performance overview against health targets (2016-17)

Indicator	Outcome	Compliant	Target	Sampling Events	Non-conformances
Microbiological	75.0%	☒	98.0%	12	3
Fluoride	n/a	n/a	n/a	n/a	n/a
Metals	100.0%	☑	100.0%	4	0
DBPs	n/a	n/a	n/a	n/a	n/a

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

Overall system performance (2016-17)

Indicator	Occurrences	Details
Customer complaints	8	Discoloured water, taste & odour, boil water & DNC alert.
Public health warnings issued	0	DNC since 24 December 2014.
System incidents & issues	3	*E. coli* exceedances.
Catchment and water source issues	0	

Current and future planned infrastructure and operational changes

Project	Description	Progress	Est. Delivery	Est. Spend ($'0000
Rossarden Water Supply System	Treated water supply to the community.	Tender	FY17/18	$3,511.43

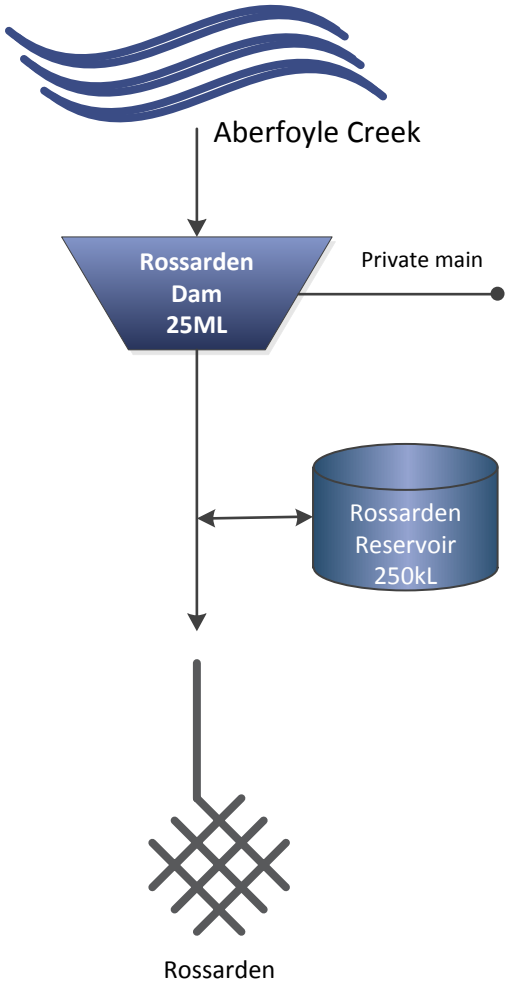


Figure 6.56.1-a Rossarden system schematic

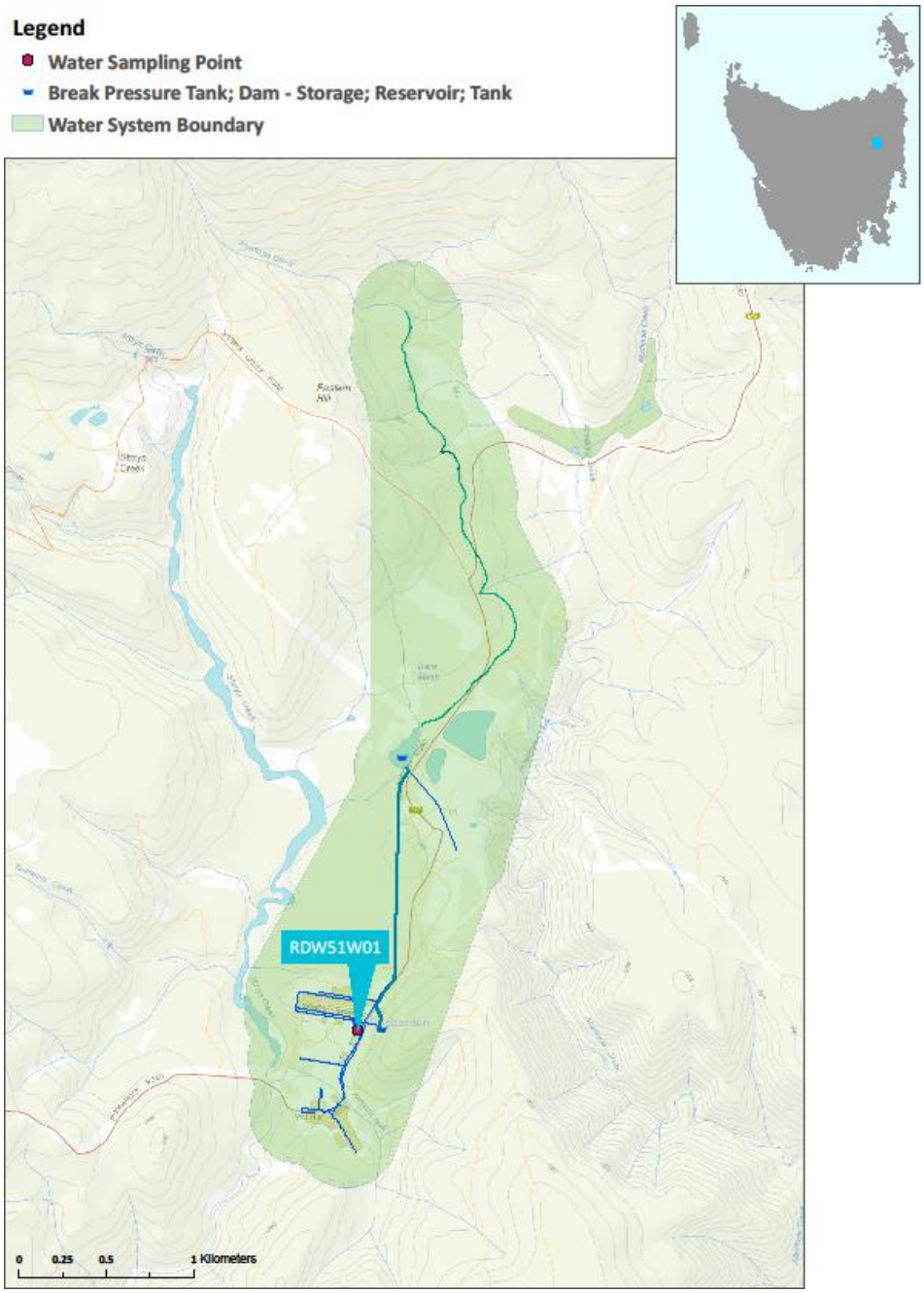


Figure 6.56.1-b Map of Rossarden monitoring system

6.56.2. Summary of Annual Reticulation Compliance (2016–17)

Table 6.56.2-a Compliance sampling program

Planned compliance sampling program (2016-17)								
Site name	Site Code	Micros	Metals	DBP	Fluoride (Field)	Fluoride (Lab)	Chemical Profile	Process Chemicals
Rossarden/Lee St BBQ Area	RDW51W01	M	Q	n/a	n/a	n/a	Q	n/a
Number Planned Samples		**12**	**4**	**0**	**0**	**0**	**4**	**0**
Number Samples Tested		**12**	**4**	**0**	**0**	**0**	**4**	**0**

6.56.3. Summary of current and historic performance (2012-17)

Table 6.56.3-a Historical health performance overview (5 year comparison)

Historical health performance overview (5 year comparison)					
Indicator	2012-13	2013-14	2014-15	2015-16	2016-17
Microbiological	99.0%	98.5%	96.0%	90.2%	75.0%
Fluoride	n/a	n/a	n/a	n/a	n/a
Metals	91.0%	100.0%	97.1%	100.0%[#]	100.0%
Disinfection by products	n/a	n/a	n/a	n/a	n/a

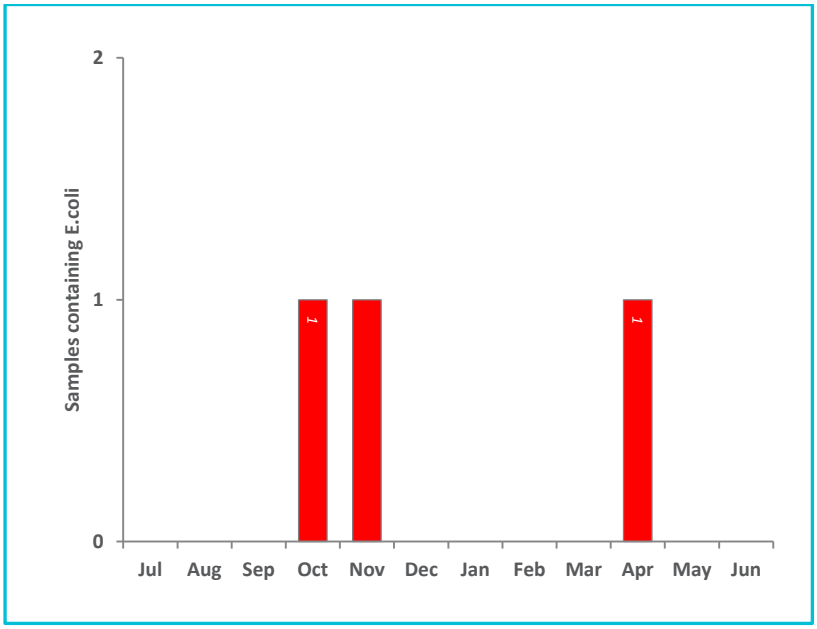
on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

- (#) Compliance testing did not detect elevated metals, however >3 failures occurred at investigation sites and are not included in the compliance evaluation.

6.56.4. Analysis of current health performance (2016-17)

Figure 6.56.4-a Microbiological non-compliances by month (2016-17)



- Poor microbiological performance can be attributed to a lack of barriers and the susceptibility to changes in quality from Aberfoyle Creek.
- The risk to public health is mitigated through the communication of the Permanent PHA to customers.

Table 6.56.4-a Metals performance 2016-17

Metals – health regulated parameters (2016–17)								
Parameter	**Limit**	**Unit**	**Samples**	**Exceedances**	**Performance %**	**Mean**	**Min.**	**Max.**
Antimony	0.003	mg/L	4	0	100	<0.0005	<0.0005	<0.0005
Arsenic	0.01	mg/L	4	0	100	0.007	0.0004	<0.001
Barium	2	mg/L	4	0	100	0.0051	0.004	0.0063
Cadmium	0.002	mg/L	4	0	100	<0.0001	<0.0001	<0.0001
Chromium	0.05	mg/L	4	0	100	0.0005	0.0001	<0.001
Copper	2	mg/L	4	0	100	0.0066	0.0043	0.0102
Lead	0.01	mg/L	4	0	100	0.0008	0.0003	0.0015
Manganese	0.5	mg/L	4	0	100	0.0166	0.0062	0.0332

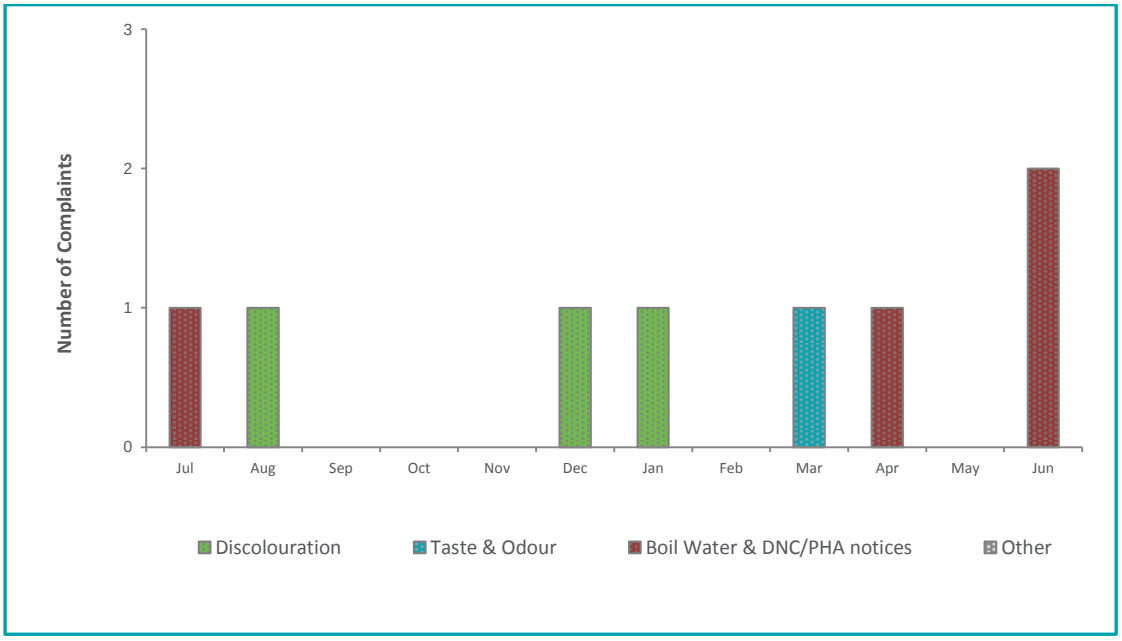
Mercury	0.001	mg/L	4	0	100	0.00004	<0.00003	<0.00005
Molybdenum	0.05	mg/L	4	0	100	0.0002	<0.0001	<0.0005
Nickel	0.02	mg/L	4	0	100	0.0007	<0.0005	0.001
Selenium	0.01	mg/L	4	0	100	0.0027	<0.0001	0.0086

6.56.5. Analysis of overall system performance (2016-17)

Table 6.56.5-a General physical performance 2016-17

General physical parameters (2016-17)					
Parameter	**Unit**	**Guideline Value**	**Mean**	**Min**	**Max**
Chlorine residual	mg/L	0.1 - <0.8	n/a	n/a	n/a
Colour True	HU	15	63	16	138
pH	Units	6.5 – 8.5	6.52	6.04	6.94
Turbidity	NTU	1	3.70	0.92	15.9

Figure 6.56.5-a Customer complaints by month and type



6.57. Scamander drinking water system

6.57.1. Summary of system status

Scamander drinking water system	
System status (as at 30 June 2017)	Potable
Total number of connections	622
Fluoride	Sodium fluoride

Performance overview against health targets (2016-17)

Indicator	Outcome	Compliant	Target	Sampling Events	Non-conformances
Microbiological	100.0%	☑	98.0%	83	0
Fluoride	100.0%	☑	90.0%	104	0
Metals	100.0%	☑	100.0%	4	0
DBPs	100.0%	☑	100.0%	4	0

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

Overall system performance (2016-17)

Indicator	Occurrences	Details
Customer complaints	13	Boil water & DNC alert.
Public health warnings issued	0	
System incidents & issues	0	
Catchment and water source issues	0	

Current and future planned infrastructure and operational changes

Project	Description	Progress	Est. Delivery	Est. Spend
n/a	n/a	n/a	n/a	n/a

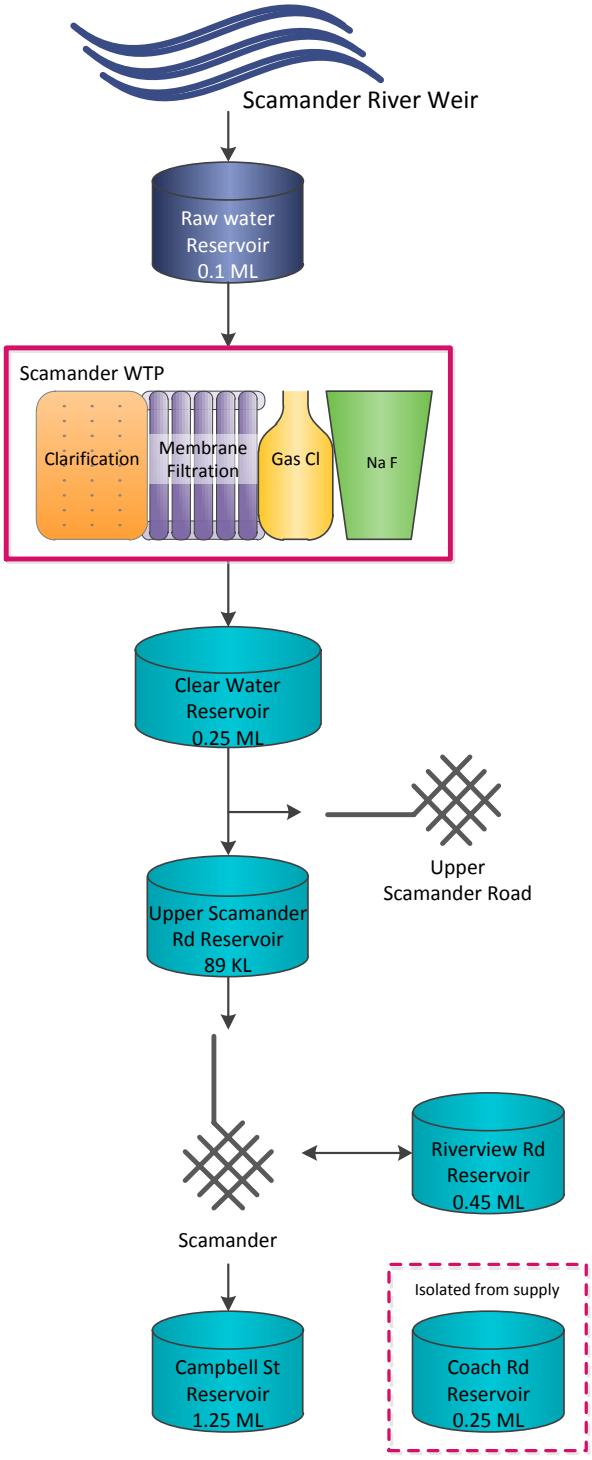


Figure 6.57.1-a Scamander system schematic

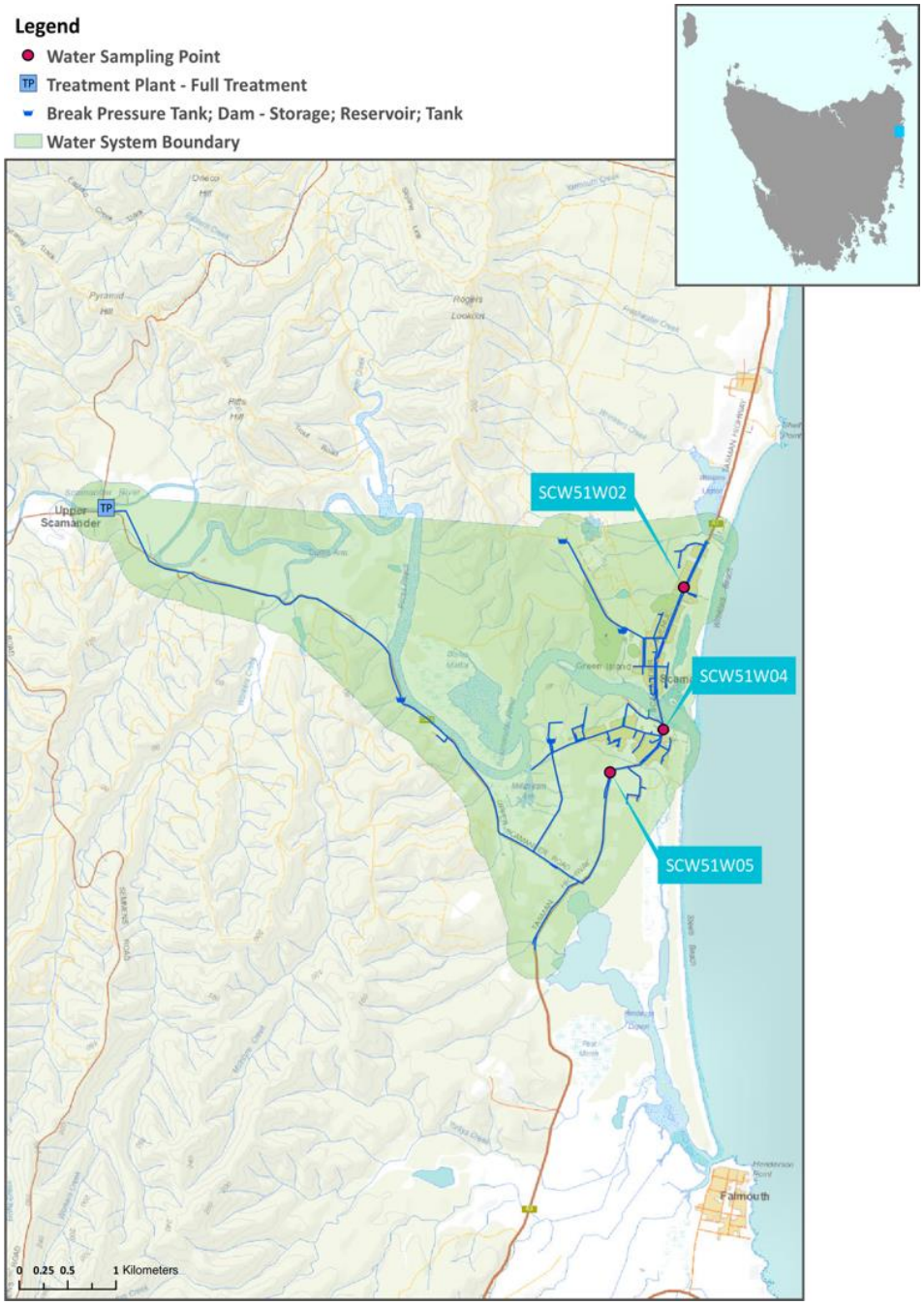


Figure 6.57.1-b Map of Scamander monitoring system

6.57.2. Summary of Annual Reticulation Compliance (2016–17)

Table 6.57.2-a Compliance sampling program

Planned compliance sampling program (2016-17)								
Site name	Site Code	Micros	Metals	DBP	Fluoride (Field)	Fluoride (Lab)	Chemical Profile	Process Chemicals
Scamander/River Mouth Carpark - 166 Scamander Ace	SCW51W04	n/a	n/a	n/a	W	n/a	n/a	n/a
Scamander/56 Scamander Ave	SCW51W02	W	Q	Q	W	M	Q	n/a
Scamander/"Crowys" 23377 Tasman Hwy	SCW51W05	W	n/a	n/a	n/a	n/a	n/a	n/a
Number Planned Samples		**104**	**4**	**4**	**104**	**12**	**4**	**0**
Number Samples Tested		**83#**	**4**	**4**	**104**	**12**	**4**	**0**

SCW51W05: Scamander/"Crowys" 23377 Tasman Hwy site added from 29/11/16.

6.57.3. Summary of current and historic performance (2012-17)

Table 6.57.3-a Historical health performance overview (5 year comparison)

Historical health performance overview (5 year comparison)					
Indicator	2012-13	2013-14	2014-15	2015-16	2016-17
Microbiological	99.9%	100.0%	94.0%	100.0%	100.0%
Fluoride	n/a	n/a	n/a	n/a	100.0%
Metals	100.0%	100.0%	100.0%	100.0%	100.0%
Disinfection by products	100.0%	100.0%	100.0%	100.0%	100.0%

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

Table 6.57.3-b Distribution fluoride testing overview (5 year comparison)

Distribution fluoride testing overview (5 year comparison)					
Indicator	**2012-13**	**2013-14**	**2014-15**	**2015-16**	**2016-17**
Exceeding 1.5 mg/L	n/a	n/a	n/a	n/a	0
Within target range (%)	n/a	n/a	n/a	n/a	35.0%
Mean dose (mg/L)	n/a	n/a	n/a	n/a	0.71

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

6.57.4. Analysis of current health performance (2016-17)

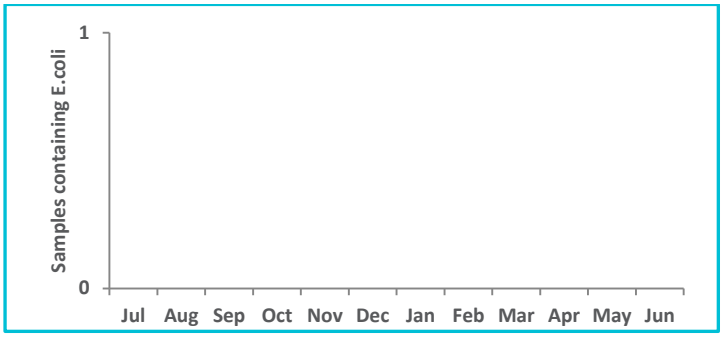


Figure 6.57.4-a Microbiological non-compliances by month (2016-17)

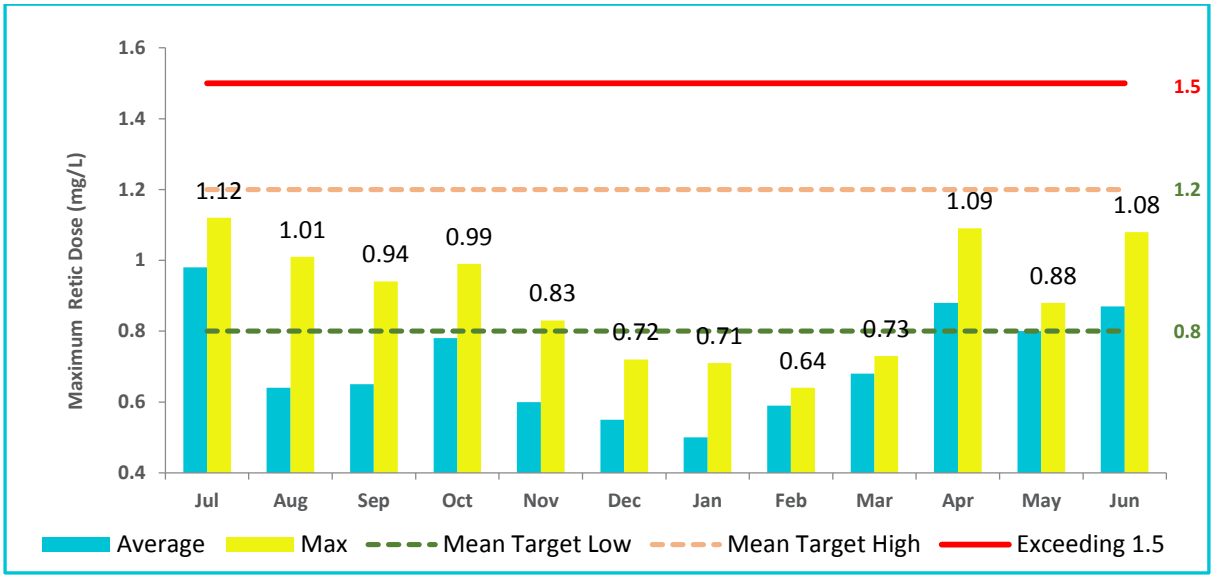


Figure 6.57.4-b Average reticulation fluoride dose by month (2016-17)

Table 6.57.4-a Metals performance 2016-17

Metals – health regulated parameters (2016–17)								
Parameter	Limit	Unit	Samples	Exceedances	Performance %	Mean	Min.	Max.
Antimony	0.003	mg/L	4	0	100	<0.0005	<0.0005	<0.0005
Arsenic	0.01	mg/L	4	0	100	0.0005	<0.0003	<0.001
Barium	2	mg/L	4	0	100	0.0075	0.007	0.0084
Cadmium	0.002	mg/L	4	0	100	<0.0001	<0.0001	<0.0001
Chromium	0.05	mg/L	4	0	100	0.0003	<0.0001	<0.001
Copper	2	mg/L	4	0	100	0.0045	0.0023	0.0082
Lead	0.01	mg/L	4	0	100	0.001	0.0003	0.0021
Manganese	0.5	mg/L	4	0	100	0.0013	0.0002	0.003
Mercury	0.001	mg/L	4	0	100	0.00005	<0.00003	0.00007
Molybdenum	0.05	mg/L	4	0	100	0.0002	<0.0001	<0.0005
Nickel	0.02	mg/L	4	0	100	0.0002	<0.0001	<0.0005
Selenium	0.01	mg/L	4	0	100	0.0006	<0.0001	<0.002

Table 6.57.4-b Disinfection by product performance 2016-17

Disinfection by products – health regulated parameters (2016–17)								
Parameter	Limit	Unit	Samples	Exceedances	Performance %	Mean	Min.	Max.
Dichloroacetic acid	100	µg/L	4	0	100	17	5	30
Monochloroacetic acid	150	µg/L	4	0	100	<5	<3	<5
Trichloroacetic acid	100	µg/L	4	0	100	13.89	7	25
Total trihalomethanes	250	µg/L	4	0	100	66.11	33	160

6.57.5. Analysis of overall system performance (2016-17)

Table 6.57.5-a General physical performance 2016-17

General physical parameters (2016-17)					
Parameter	**Unit**	**Guideline Value**	**Mean**	**Min**	**Max**
Chlorine residual	mg/L	0.1 - <0.8	0.78	0.05	1.40
Colour True	HU	15	<1	<1	<1
pH	Units	6.5 – 8.5	7.40	6.86	7.93
Turbidity	NTU	1	0.26	0.12	0.49

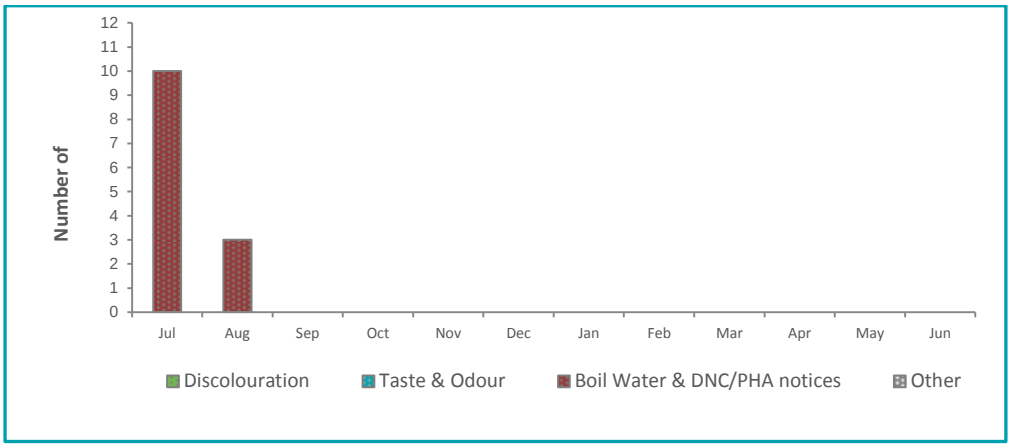


Figure 6.57.5-a Customer complaints by month and type

6.58. Scottsdale drinking water system

6.58.1. Summary of system status

Scottsdale drinking water system	
System status (as at 30 June 2017)	Potable
Total number of connections	1358
Fluoride	Sodium Fluoride

Performance overview against health targets (2016-17)

Indicator	Outcome	Compliant	Target	Sampling Events	Non-conformances
Microbiological	100.0%	☑	98.0%	104	0
Fluoride	100.0%	☑	100.0%	104	0
Metals	100.0%	☑	100.0%	4	0
DBPs	100.0%	☑	100.0%	4	0

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

Overall system performance (2016-17)

Indicator	Occurrences	Details
Customer complaints	1	Discoloured water.
Public health warnings issued	0	
System incidents & issues	0	
Catchment and water source issues	0	

Current and future planned infrastructure and operational changes

Project	Description	Progress	Est. Delivery	Est. Spend
n/a	n/a	n/a	n/a	n/a

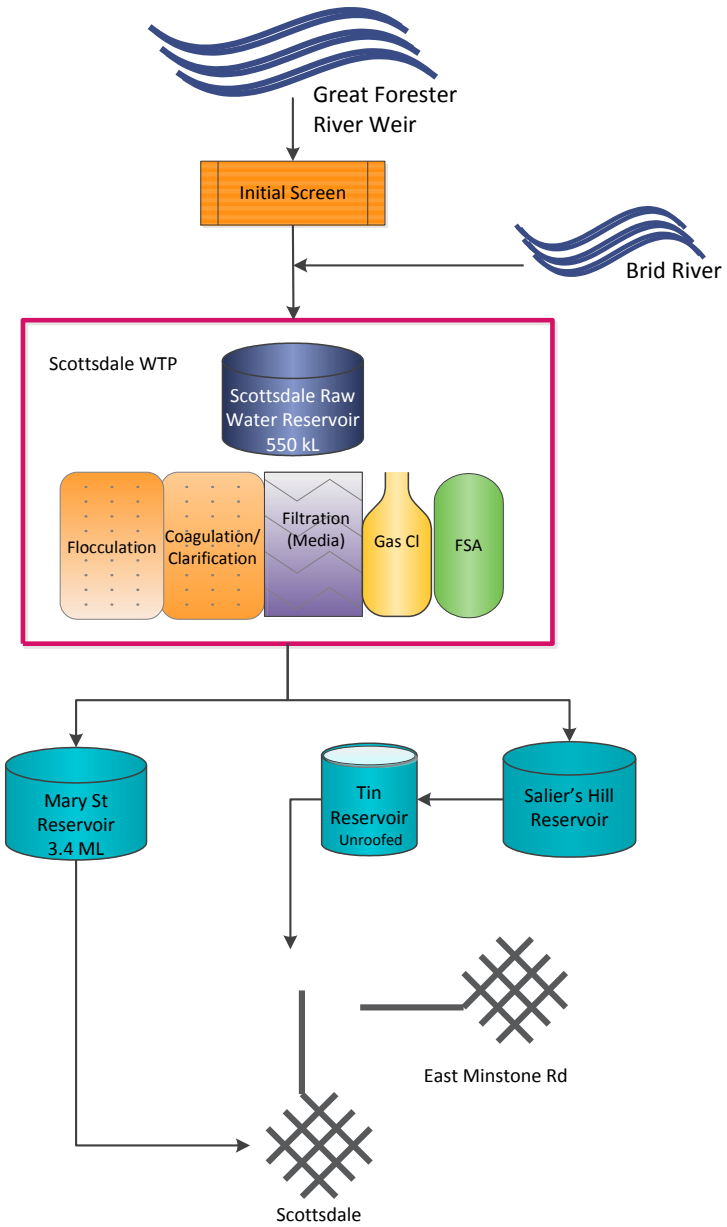


Figure 6.58.1-a Scottsdale system schematic

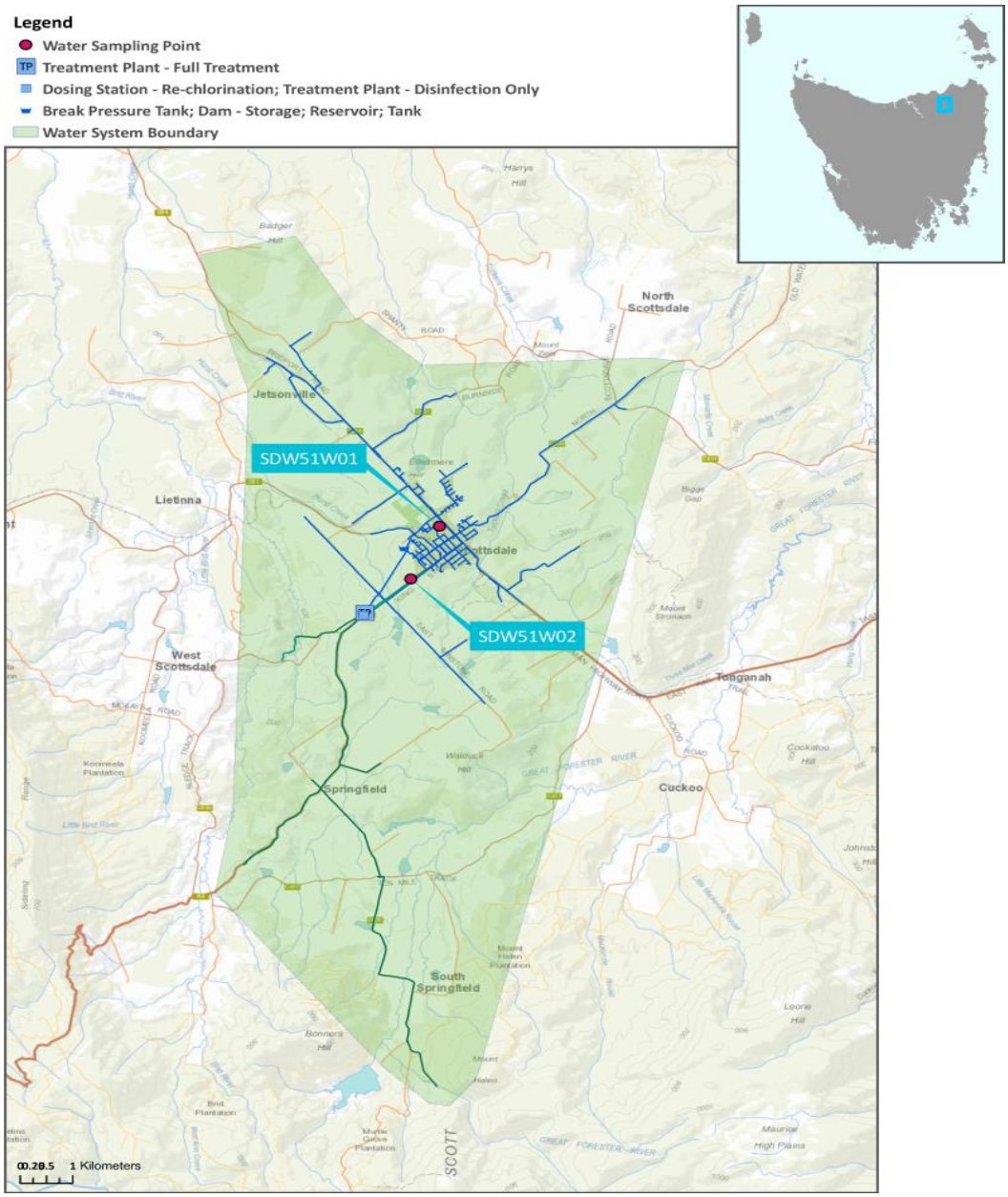


Figure 6.58.1-b Map of Scottsdale monitoring system

6.58.2. Summary of Annual Reticulation Compliance (2016–17)

Table 6.58.2-a Compliance sampling program

Planned compliance sampling program (2016-17)								
Site name	Site Code	Micros	Metals	DBP	Fluoride (Field)	Fluoride (Lab)	Chemical Profile	Process Chemicals
Scottsdale/Recreation Ground	SDW51W01	W	Q	Q	W	M	Q	n/a
Scottsdale/Visitor Info King St	SDW51W02	W	n/a	n/a	W	n/a	n/a	n/a
Number Planned Samples		**104**	**4**	**4**	**104**	**12**	**4**	**0**
Number Samples Tested		**104**	**4**	**4**	**104**	**12**	**4**	**0**

6.58.3. Summary of current and historic performance (2012-17)

Table 6.58.3-a Historical health performance overview (5 year comparison)

Historical health performance overview (5 year comparison)					
Indicator	2012-13	2013-14	2014-15	2015-16	2016-17
Microbiological	100.0%	100.0%	100.0%	99.0%	100.0%
Fluoride	100.0%	100.0%	100.0%	100.0%	100.0%
Metals	100.0%	100.0%	100.0%	100.0%	100.0%
Disinfection by products	100.0%	100.0%	100.0%	100.0%	100.0%

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

Table 6.58.3-b Distribution fluoride testing overview (5 year comparison)

Distribution fluoride testing overview (5 year comparison)					
Indicator	2012-13	2013-14	2014-15	2015-16	2016-17

Exceeding 1.5 mg/L	0	0	0	0	0
Within target range (%)	Not Required	Not Required	98.0%	100.0%	95.2%
Mean dose (mg/L)	Not Required	Not Required	0.91	0.90	0.91

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

6.58.4. Analysis of current health performance (2016-17)

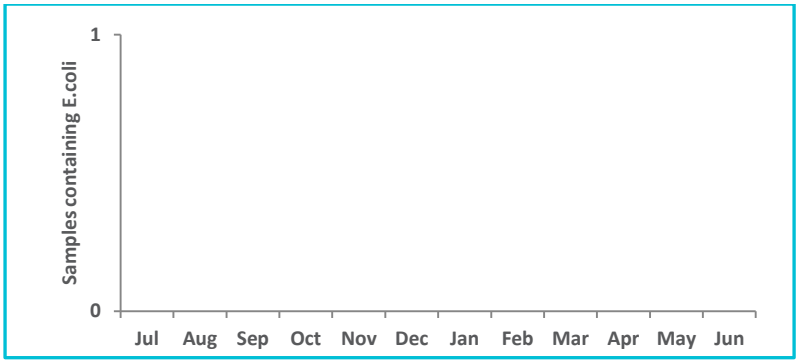


Figure 6.58.4-a Microbiological non-compliances by month (2016-17)

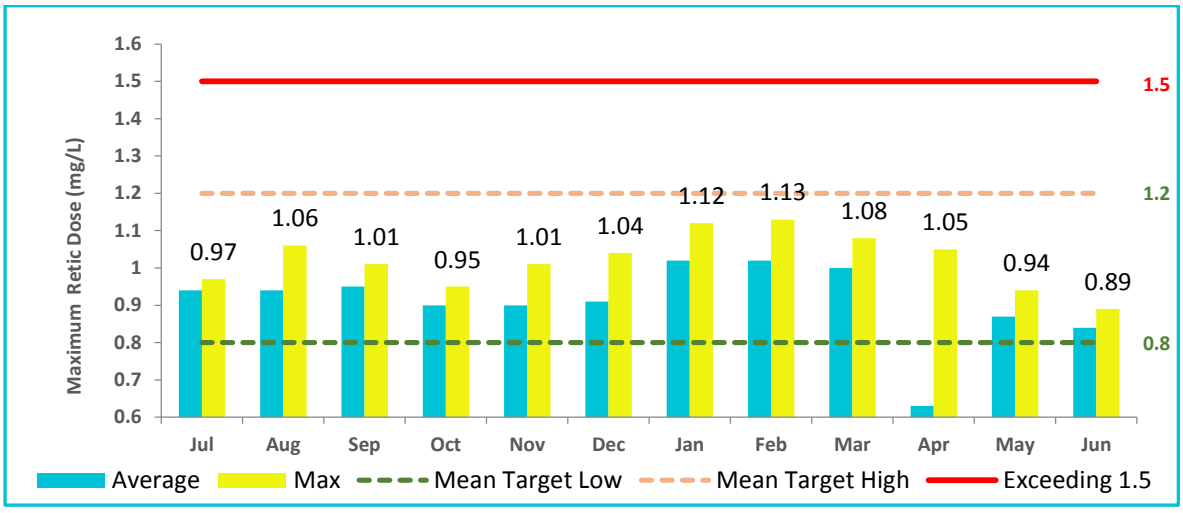


Figure 6.58.4-b Average reticulation fluoride dose by month (2016-17)

Table 6.58.4-a Metals performance 2016-17

Metals – health regulated parameters (2016–17)								
Parameter	Limit	Unit	Samples	Exceedances	Performance %	Mean	Min.	Max.
Antimony	0.003	mg/L	4	0	100	<0.0005	<0.0005	<0.0005
Arsenic	0.01	mg/L	4	0	100	0.0005	<0.0003	<0.001
Barium	2	mg/L	4	0	100	0.011	0.0091	0.0126
Cadmium	0.002	mg/L	4	0	100	<0.0001	<0.0001	<0.0001
Chromium	0.05	mg/L	4	0	100	0.0003	<0.0001	<0.001
Copper	2	mg/L	4	0	100	0.0065	0.0018	0.013
Lead	0.01	mg/L	4	0	100	0.0005	<0.0001	0.0008
Manganese	0.5	mg/L	4	0	100	0.0015	0.0011	0.002
Mercury	0.001	mg/L	4	0	100	0.00006	0.00003	0.00007
Molybdenum	0.05	mg/L	4	0	100	0.0002	<0.0001	<0.0005
Nickel	0.02	mg/L	4	0	100	0.0002	<0.0001	<0.0005
Selenium	0.01	mg/L	4	0	100	0.0006	<0.0001	<0.002

Table 6.58.4-b Disinfection by product performance 2016-17

Disinfection by products – health regulated parameters (2016–17)								
Parameter	Limit	Unit	Samples	Exceedances	Performance %	Mean	Min.	Max.
Dichloroacetic acid	100	µg/L	4	0	100	7.25	5	11
Monochloroacetic acid	150	µg/L	4	0	100	<5	<3	<5
Trichloroacetic acid	100	µg/L	4	0	100	6.75	4	12

Total trihalomethanes	250	µg/L	4	0	100	19.5	13	28

6.58.5. Analysis of overall system performance (2016-17)

Table 6.58.5-a General physical performance 2016-17

General physical parameters (2016-17)					
Parameter	**Unit**	**Guideline Value**	**Mean**	**Min**	**Max**
Chlorine residual	mg/L	0.1 - <0.8	0.55	0.10	0.93
Colour True	HU	15	<1	<1	<1
pH	Units	6.5 – 8.5	7.00	6.05	7.67
Turbidity	NTU	1	0.29	0.10	0.66

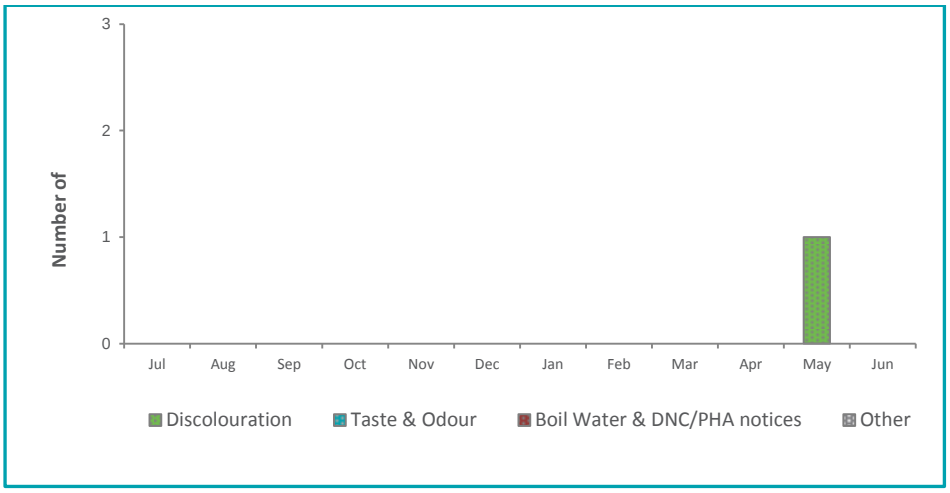


Figure 6.58.5-a Customer complaints by month and type

6.59. South Esk drinking water system

6.59.1. Summary of system status

South Esk drinking water system	
System status (as at 30 June 2017)	Potable
Total number of connections	5678
Fluoride	Fluorosilicic acid

Performance overview against health targets (2016-17)

Indicator	Outcome	Compliant	Target	Sampling Events	Non-conformances
Microbiological	100.0%	☑	98.0%	358	0
Fluoride	100.0%	☑	100.0%	104	0
Metals	100.0%	☑	100.0%	4	0
DBPs	100.0%	☑	100.0%	4	0

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

Overall system performance (2016-17)

Indicator	Occurrences	Details
Customer complaints	22	Discoloured water, taste & odour, other (Illness from water).
Public health warnings issued	0	
System incidents & issues	0	
Catchment and water source issues	5	Trace levels of pesticides were collected in the catchment. All results were well below the ADWG health limits.

Current and future planned infrastructure and operational changes

Project	Description	Progress	Est. Delivery	Est. Spend
n/a	n/a	n/a	n/a	n/a

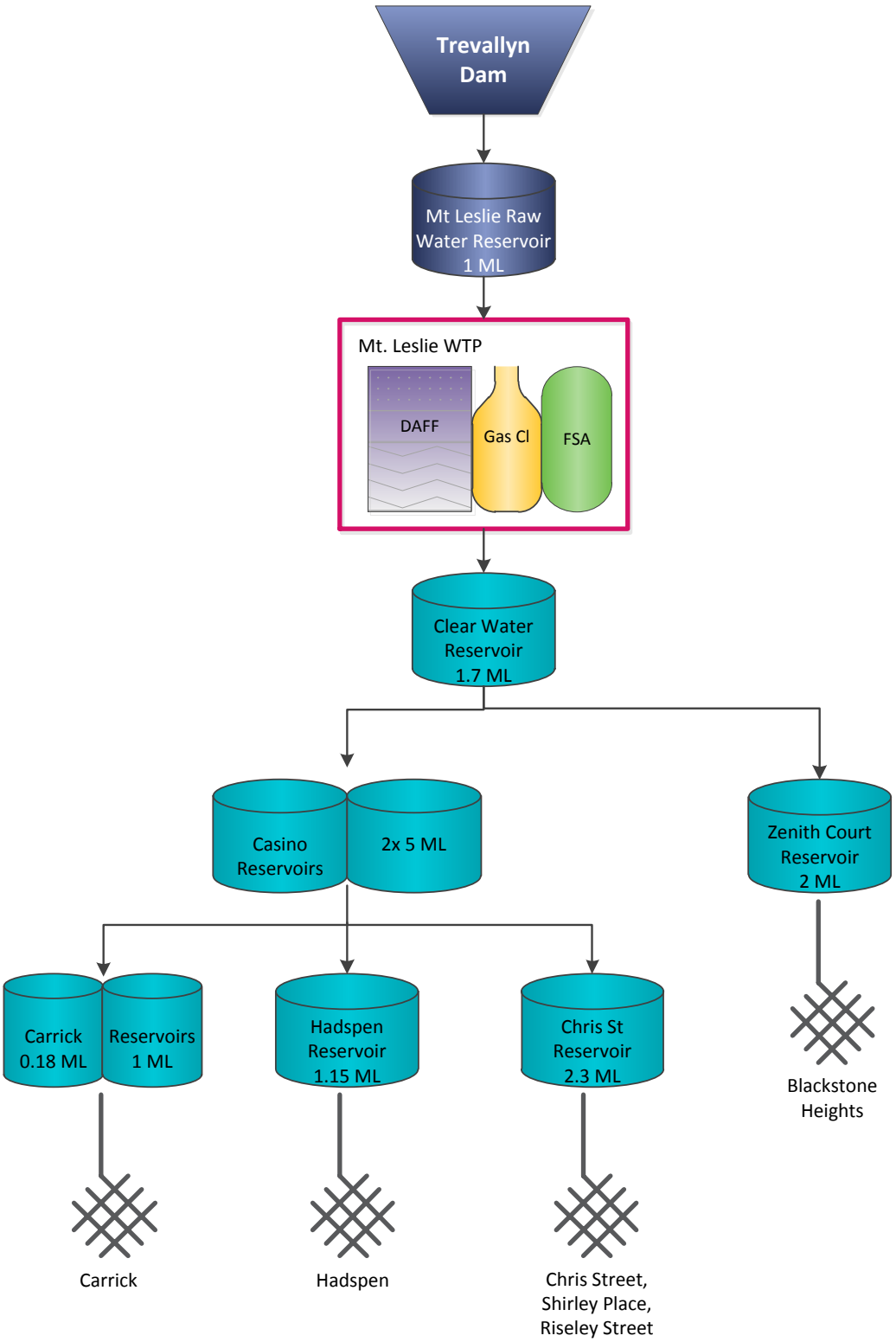


Figure 6.59.1-a South Esk system schematic

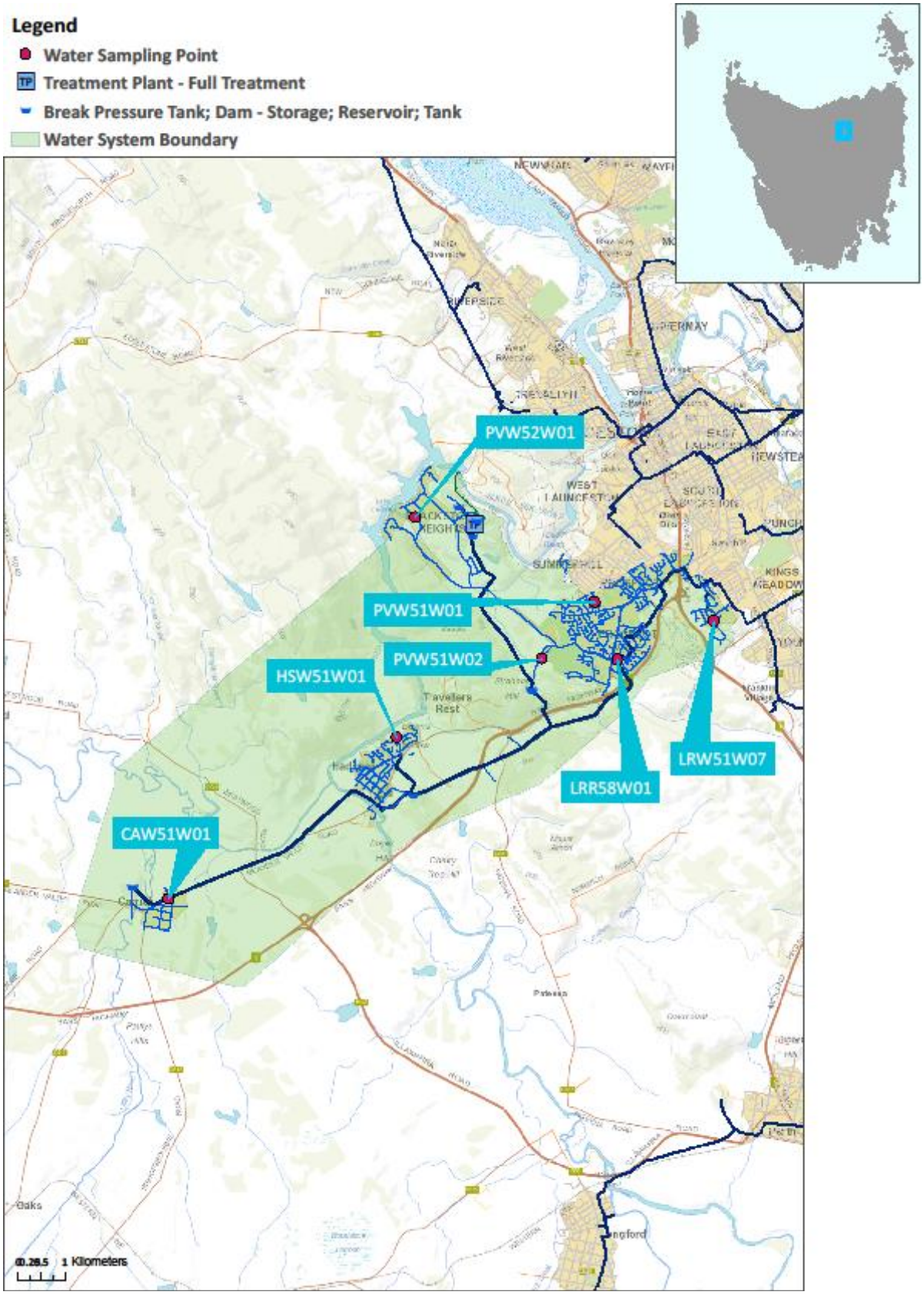


Figure 6.59.1-b Map of South Esk monitoring system

6.59.2. Summary of Annual Reticulation Compliance (2016–17)

Table 6.59.2-a Compliance sampling program

Planned compliance sampling program (2016-17)								
Site name	**Site Code**	**Micros**	**Metals**	**DBP**	**Fluoride (Field)**	**Fluoride (Lab)**	**Chemical Profile**	**Process Chemicals**
Blackstone Heights, Longvista Drive	PVW52W01	W	n/a	n/a	n/a	n/a	n/a	n/a
Prospect Vale, Country Club	PVW51W02	W	n/a	n/a	n/a	n/a	n/a	n/a
Kings Meadows, Connector Park	LRW51W07	W	n/a	n/a	n/a	n/a	n/a	n/a
Prospect Vale, Chris St Res	LRR58W01	W	n/a	n/a	n/a	n/a	n/a	n/a
Carrick, Public Hall	CAW51W01	W	n/a	n/a	n/a	n/a	n/a	n/a
Prospect Vale, Willow Lane	PVW51W01	W	n/a	n/a	W	n/a	n/a	n/a
Hadspen, South Esk Drive	HSW51W01	W	Q	Q	W	M	Q	n/a
Number Planned Samples		**364**	**4**	**4**	**104**	**12**	**4**	**0**
Number Samples Tested		**358#**	**4**	**4**	**104**	**12**	**4**	**0**

- # 6 micro samples missing from 11/07/16 until the start of 1/9/16 due to new tap installation.

6.59.3. Summary of current and historic performance (2012-17)

Table 6.59.3-a Historical health performance overview (5 year comparison)

Historical health performance overview (5 year comparison)					
Indicator	**2012-13**	**2013-14**	**2014-15**	**2015-16**	**2016-17**
Microbiological	100.0%	100.0%	100.0%	100.0%	100.0%
Fluoride	100.0%	100.0%	100.0%	100.0%	100.0%
Metals	100.0%	100.0%	100.0%	100.0%	100.0%
Disinfection by products	100.0%	100.0%	100.0%	100.0%	100.0%

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

Table 6.59.3-b Distribution fluoride testing overview (5 year comparison)

Distribution fluoride testing overview (5 year comparison)					
Indicator	**2012-13**	**2013-14**	**2014-15**	**2015-16**	**2016-17**
Exceeding 1.5 mg/L	0	0	0	0	0
Within target range (%)	Not Recorded	Not Recorded	100.0%	98.0%	96.2%
Mean dose (mg/L)	Not Recorded	Not Recorded	1.02	0.97	0.99

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

6.59.4. Analysis of current health performance (2016-17)

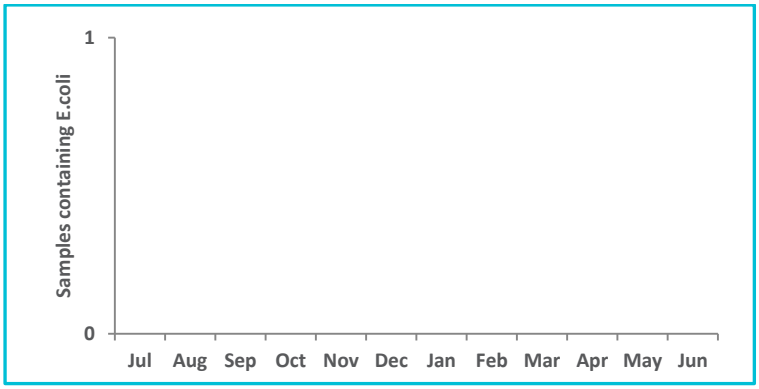


Figure 6.59.4-a Microbiological non-compliances by month (2016-17)

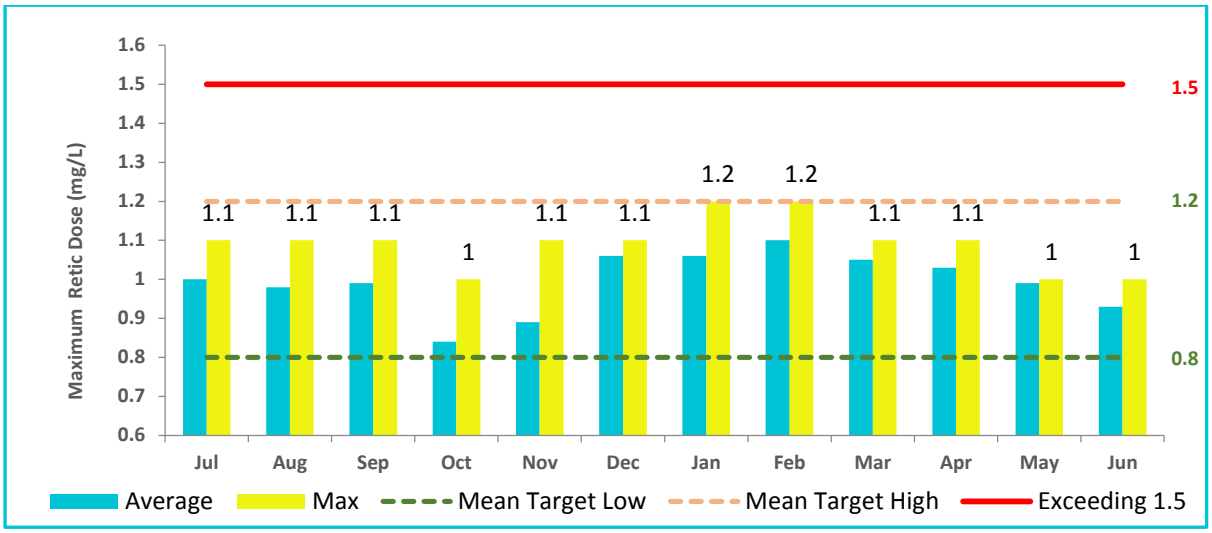


Figure 6.59.4-b Average reticulation fluoride dose by month (2016-17)

Table 6.59.4-a Metals performance 2016-17

Metals – health regulated parameters (2016–17)								
Parameter	Limit	Unit	Samples	Exceedances	Performance %	Mean	Min.	Max.
Antimony	0.003	mg/L	4	0	100	<0.0005	<0.0005	<0.0005
Arsenic	0.01	mg/L	4	0	100	0.0007	<0.0003	0.001
Barium	2	mg/L	4	0	100	0.0138	0.0109	0.0153
Cadmium	0.002	mg/L	4	0	100	<0.0001	<0.0001	<0.0001
Chromium	0.05	mg/L	4	0	100	0.0003	<0.0001	<0.001
Copper	2	mg/L	4	0	100	0.0037	0.002	0.0063
Lead	0.01	mg/L	4	0	100	0.0006	0.0003	0.0008
Manganese	0.5	mg/L	4	0	100	0.0034	0.0009	0.007
Mercury	0.001	mg/L	4	0	100	0.00007	<0.00003	0.00016
Molybdenum	0.05	mg/L	4	0	100	0.0002	<0.0001	<0.0005
Nickel	0.02	mg/L	4	0	100	0.0003	<0.0001	<0.0005
Selenium	0.01	mg/L	4	0	100	0.0006	<0.0001	<0.002

Table 6.59.4-b Disinfection by product performance 2016-17

Disinfection by products – health regulated parameters (2016–17)								
Parameter	Limit	Unit	Samples	Exceedances	Performance %	Mean	Min.	Max.
Dichloroacetic acid	100	µg/L	4	0	100	8.75	7	12
Monochloroacetic acid	150	µg/L	4	0	100	<5	<3	<5
Trichloroacetic acid	100	µg/L	4	0	100	11.25	6	17
Total trihalomethanes	250	µg/L	4	0	100	36	20	52

6.59.5. Analysis of overall system performance (2016-17)

Table 6.59.5-a General physical performance 2016-17

General physical parameters (2016-17)					
Parameter	**Unit**	**Guideline Value**	**Mean**	**Min**	**Max**
Chlorine residual	mg/L	0.1 - <0.8	0.58	0.0	1.18
Colour True	HU	15	<1	<1	<1
pH	Units	6.5 – 8.5	7.00	6.05	7.67
Turbidity	NTU	1	0.29	0.10	0.66

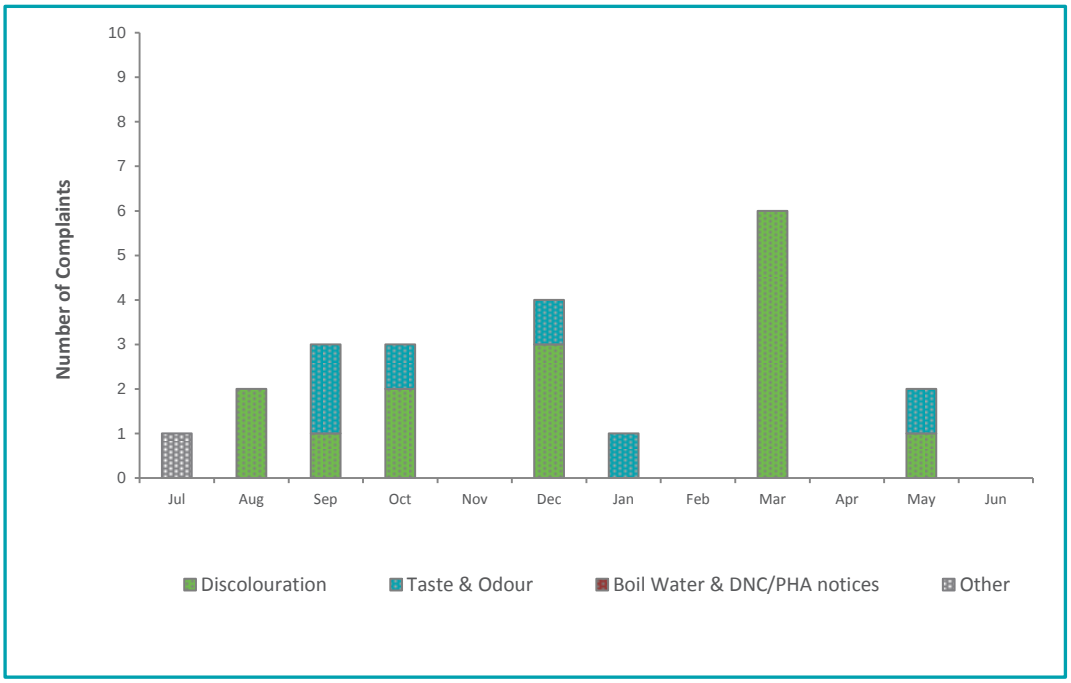


Figure 6.59.5-a Customer complaints by month and type

6.60. St Helens drinking water system

6.60.1. Summary of system status

St Helens drinking water system	
System status (as at 30 June 2017)	Potable
Total number of connections	2170
Fluoride	Sodium Fluoride

Performance overview against health targets (2016-17)

Indicator	Outcome	Compliant	Target	Sampling Events	Non-conformances
Microbiological	100.0%	☑	98.0%	104	0
Fluoride	100.0%	☑	100.0%	34	0
Metals	100.0%	☑	100.0%	4	0
DBPs	100.0%	☑	100.0%	4	0

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

Overall system performance (2016-17)

Indicator	Occurrences	Details
Customer complaints	1	Taste & odour.
Public health warnings issued	0	
System incidents & issues	1	Fluoride dosing off for maintenance
Catchment and water source issues	0	

Current and future planned infrastructure and operational changes

Project	Description	Progress	Est. Delivery	Est. Spend ($'000)
St Helens Disinfection Project	Installation of UV disinfection or similar at the St Helens WTP.	Planning	FY18/19	$37.24

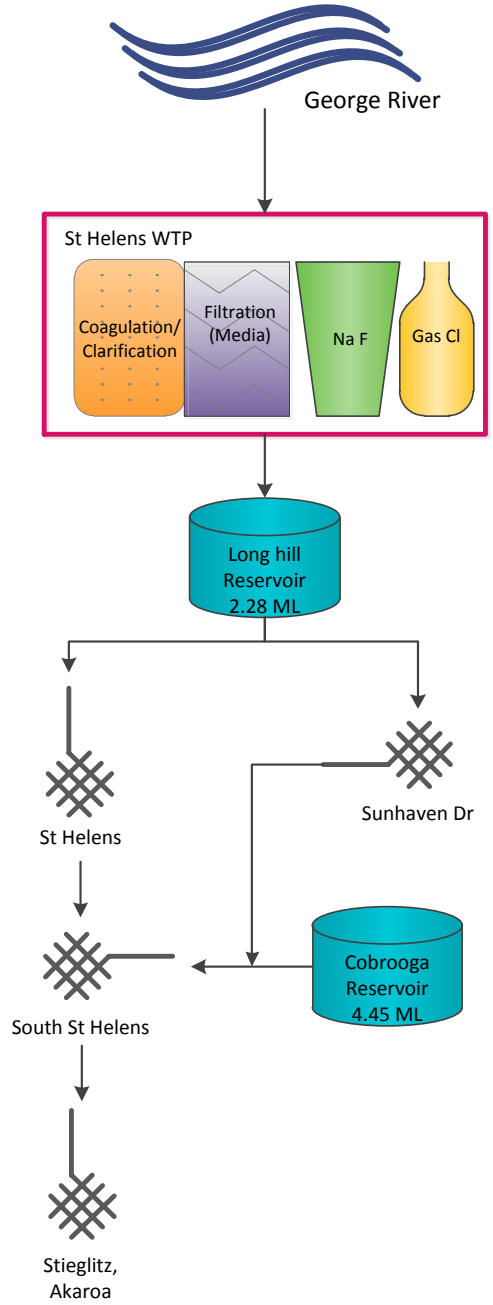


Figure 6.60.1-a St Helens system schematic

Figure 6.60.1-b Map of St Helens monitoring system

6.60.2. Summary of Annual Reticulation Compliance (2016–17)

Table 6.60.2-a Compliance sampling program

Planned compliance sampling program (2016-17)								
Site name	Site Code	Micros	Metals	DBP	Fluoride (Field)	Fluoride (Lab)	Chemical Profile	Process Chemicals
St Helens/Longhill Reservoir	SHR51W01	W	n/a	n/a	W	M	n/a	n/a
St Helens/Stieglitz Beach	SHW51W02	W	Q	Q	W	n/a	Q	n/a
Number Planned Samples		**104**	**4**	**4**	**104**	**12**	**4**	**0**
Number Samples Tested		**104**	**4**	**4**	**34#**	**12**	**4**	**0**

- # Only 34 samples for fluoride due to fluoride dosing being offline at St Helens WTP.

6.60.3. Summary of current and historic performance (2012-17)

Table 6.60.3-a Historical health performance overview (5 year comparison)

Historical health performance overview (5 year comparison)					
Indicator	2012-13	2013-14	2014-15	2015-16	2016-17
Microbiological	99.0%	98.0%	100.0%	100.0%	100.0%
Fluoride	100.0%	100.0%	100.0%	100.0%	100.0%
Metals	100.0%	100.0%	100.0%	100.0%	100.0%
Disinfection by products	100.0%	100.0%	100.0%	100.0%	100.0%

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

Table 6.60.3-b Distribution fluoride testing overview (5 year comparison)

Distribution fluoride testing overview (5 year comparison)					
Indicator	**2012-13**	**2013-14**	**2014-15**	**2015-16**	**2016-17**
Exceeding 1.5 mg/L	0	0	0	0	0
Within target range (%)	Not Recorded	Not Recorded	97.0%	89.9%	5.9%
Mean dose (mg/L)	Not Recorded	Not Recorded	0.90	0.90	0.13

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

- Fluoride dosing was off for maintenance during the reporting period and as a consequence the target range within the distribution network was below target range.

6.60.4. Analysis of current health performance (2016-17)

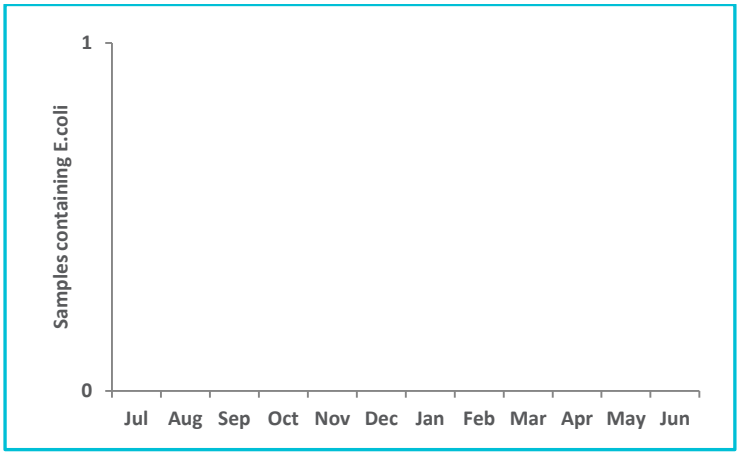


Figure 6.60.4-a Microbiological non-compliances by month (2016-17)

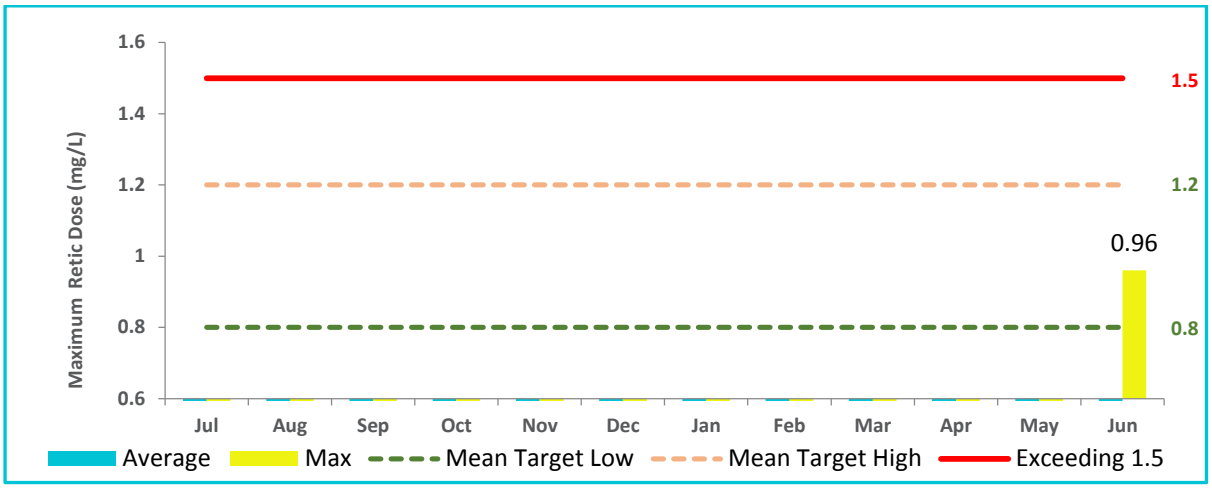


Figure 6.60.4-b Average reticulation fluoride dose by month (2016-17)

Table 6.60.4-a Metals performance 2016-17

Metals – health regulated parameters (2016–17)								
Parameter	**Limit**	**Unit**	**Samples**	**Exceedances**	**Performance %**	**Mean**	**Min.**	**Max.**
Antimony	0.003	mg/L	4	0	100	<0.0005	<0.0005	<0.0005
Arsenic	0.01	mg/L	4	0	100	0.0005	<0.0003	<0.001
Barium	2	mg/L	4	0	100	0.0065	0.006	0.007
Cadmium	0.002	mg/L	4	0	100	<0.0001	<0.0001	<0.0001
Chromium	0.05	mg/L	4	0	100	0.0003	<0.0001	<0.001
Copper	2	mg/L	4	0	100	0.0026	0.0018	0.0037
Lead	0.01	mg/L	4	0	100	0.0002	0.0001	<0.0005
Manganese	0.5	mg/L	4	0	100	0.002	0.0007	0.004
Mercury	0.001	mg/L	4	0	100	0.00005	<0.00003	0.00006
Molybdenum	0.05	mg/L	4	0	100	0.0002	<0.0001	<0.0005
Nickel	0.02	mg/L	4	0	100	0.0002	<0.0001	<0.0005
Selenium	0.01	mg/L	4	0	100	0.0007	<0.0001	<0.002

Table 6.60.4-b Disinfection by product performance 2016-17

Disinfection by products – health regulated parameters (2016–17)								
Parameter	Limit	Unit	Samples	Exceedances	Performance %	Mean	Min.	Max.
Dichloroacetic acid	100	µg/L	4	0	100	4	2	6
Monochloroacetic acid	150	µg/L	4	0	100	<5	<3	<5
Trichloroacetic acid	100	µg/L	4	0	100	17.75	11	22
Total trihalomethanes	250	µg/L	4	0	100	47.5	32	65
TOTAL			**4**	**0**	**100**			

6.60.5. Analysis of overall system performance (2016-17)

Table 6.60.5-a General physical performance 2016-17

General physical parameters (2016-17)					
Parameter	Unit	Guideline Value	Mean	Min	Max
Chlorine residual	mg/L	0.1 - <0.8	0.75	0.10	1.52
Colour True	HU	15	<1	<1	<1
pH	Units	6.5 – 8.5	7.32	6.59	7.76
Turbidity	NTU	1	0.27	0.03	1.02

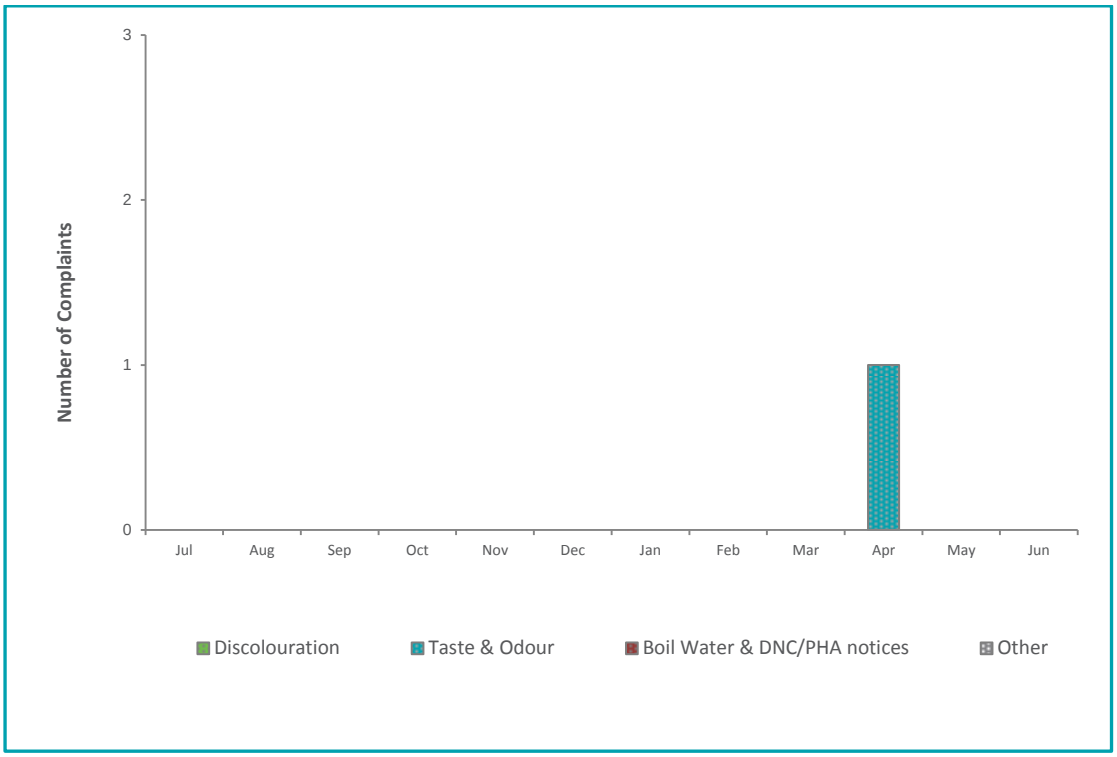


Figure 6.60.5-a Customer complaints by month and type

6.61. St Marys drinking water system

6.61.1. Summary of system status

St Marys drinking water system	
System status (as at 30 June 2017)	Potable
Total number of connections	440
Fluoride	Sodium fluoride

Performance overview health targets (2016-17)

Indicator	Outcome	Compliant	Target	Sampling Events	Non-conformances
Microbiological	100.0%	☑	98.0%	52	0
Fluoride	100.0%	☑	100.0%	104	0
Metals	100.0%	☑	100.0%	4	0
DBPs	100.0%	☑	100.0%	4	0

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

Overall system performance (2016-17)

Indicator	Occurrences	Details
Customer complaints	6	Discoloured water, taste & odour.
Public health warnings issued	0	
System incidents & issues	0	
Catchment and water source issues	0	

Current and future planned infrastructure and operational changes

Project	Description	Progress	Est. Delivery	Est. Spend
n/a	n/a	n/a	n/a	n/a

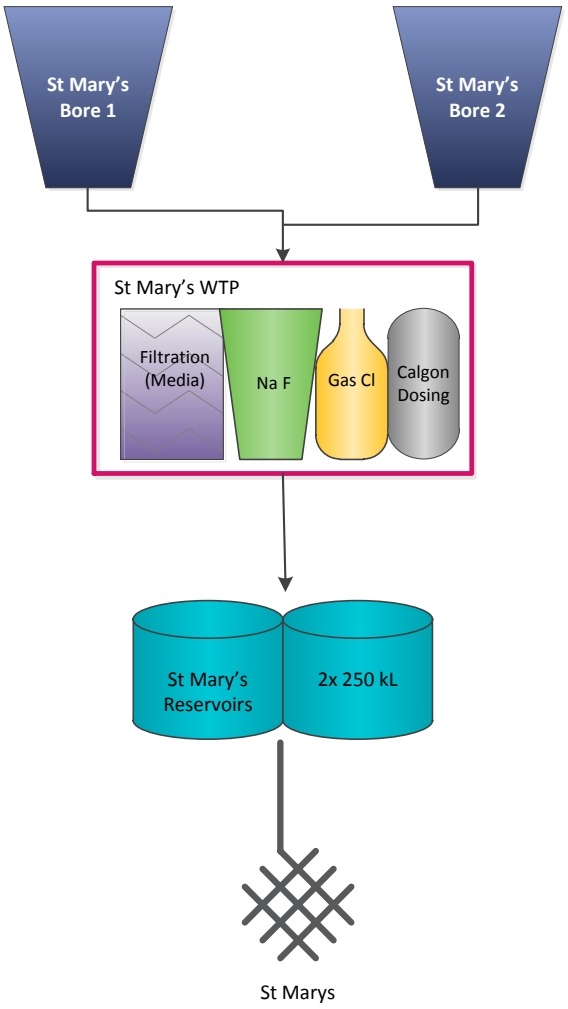


Figure 6.61.1-a St Marys system schematic

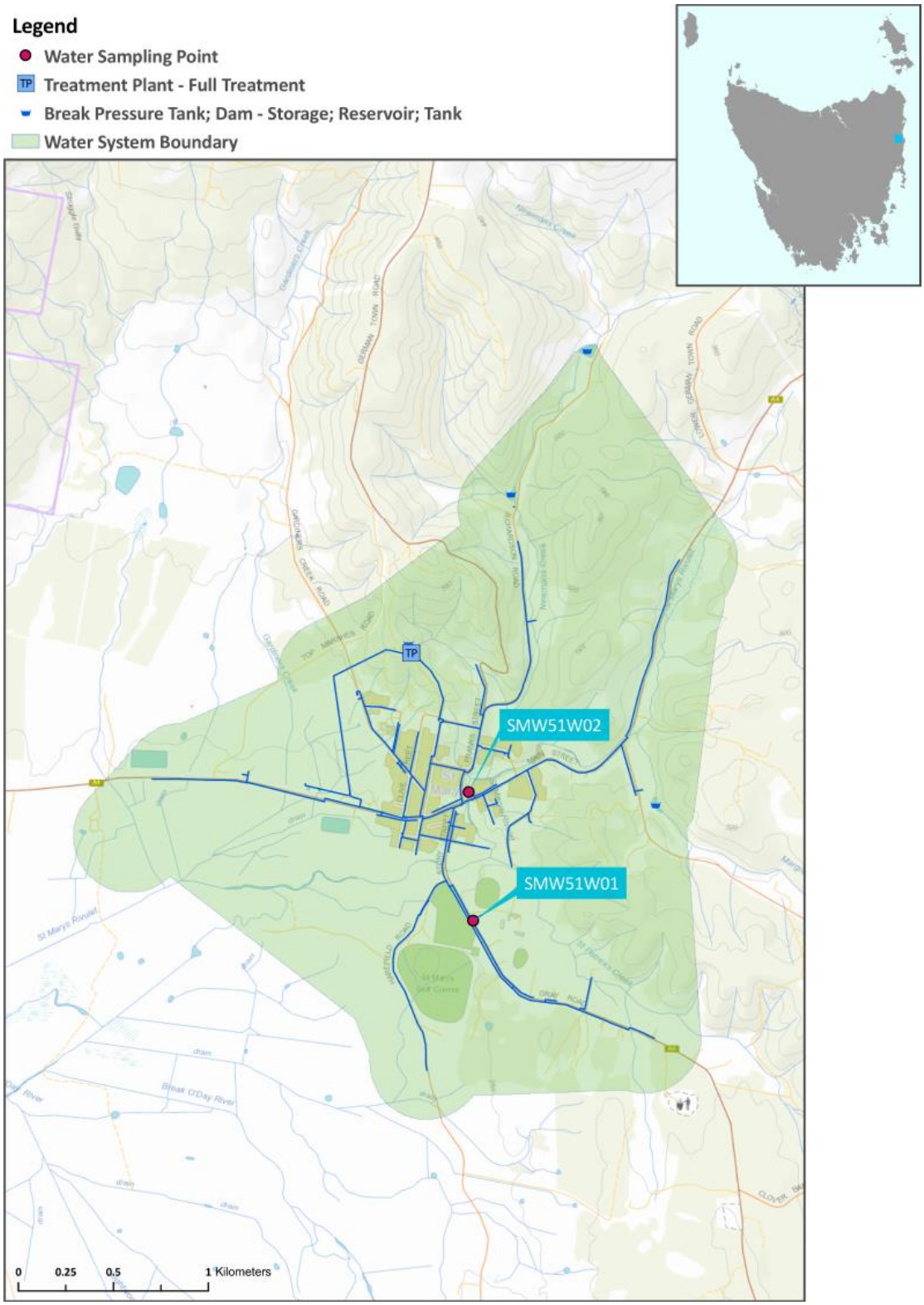


Figure 6.61.1-b Map of St Marys monitoring system

6.61.2. Summary of Annual Reticulation Compliance (2016–17)

Table 6.61.2-a Compliance sampling program

Planned compliance sampling program (2016-17)								
Site name	Site Code	Micros	Metals	DBP	Fluoride (Field)	Fluoride (Lab)	Chemical Profile	Process Chemicals
St Marys/Park Near Library	SMW51W02	n/a	n/a	n/a	W	n/a	n/a	n/a
St Marys/St. Marys School	SMW51W01	W	Q	Q	W	M	Q	n/a
Number Planned Samples		**52**	**4**	**4**	**104**	**12**	**4**	**0**
Number Samples Tested		**52**	**4**	**4**	**104**	**12**	**4**	**0**

6.61.3. Summary of current and historic performance (2012-17)

Table 6.61.3-a Historical health performance overview (5 year comparison)

Historical health performance overview (5 year comparison)					
Indicator	2012-13	2013-14	2014-15	2015-16	2016-17
Microbiological	100.0%	100.0%	100.0%	100.0%	100.0%
Fluoride	100.0%	100.0%	100.0%	100.0%	100.0%
Metals	100.0%	100.0%	100.0%	100.0%	100.0%
Disinfection by products	100.0%	100.0%	100.0%	100.0%	100.0%

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

Table 6.61.3-b Distribution fluoride testing overview (5 year comparison)

Distribution fluoride testing overview (5 year comparison)					
Indicator	**2012-13**	**2013-14**	**2014-15**	**2015-16**	**2016-17**
Exceeding 1.5 mg/L	0	0	0	0	0
Within target range (%)	Not Recorded	Not Recorded	57.0%	70.8%	88.5%
Mean dose (mg/L)	Not Recorded	Not Recorded	0.72	0.78	0.95

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

6.61.4. Analysis of current health performance (2016-17)

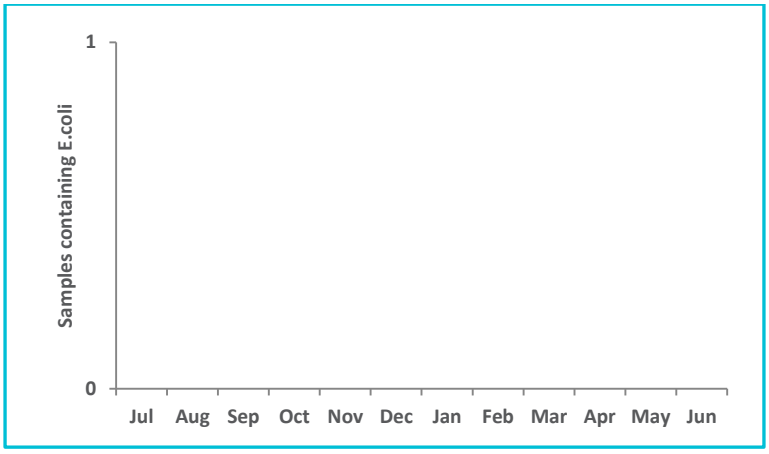


Figure 6.61.4-a Microbiological non-compliances by month (2016-17)

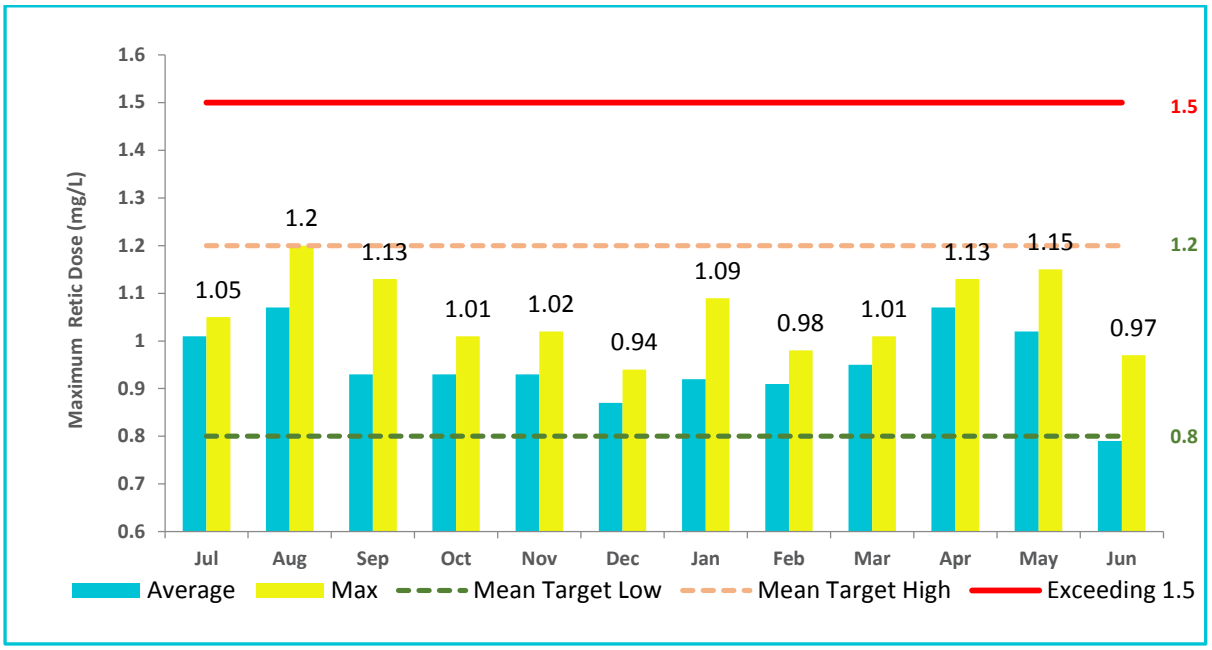


Figure 6.61.4-b Average reticulation fluoride dose by month (2016-17)

Table 6.61.4-a Metals performance 2016-17

Metals – health regulated parameters (2016–17)								
Parameter	**Limit**	**Unit**	**Samples**	**Exceedances**	**Performance %**	**Mean**	**Min.**	**Max.**
Antimony	0.003	mg/L	4	0	100	<0.0005	<0.0005	<0.0005
Arsenic	0.01	mg/L	4	0	100	0.0005	<0.0003	<0.001
Barium	2	mg/L	4	0	100	0.137	0.129	0.148
Cadmium	0.002	mg/L	4	0	100	<0.0001	<0.0001	<0.0001
Chromium	0.05	mg/L	4	0	100	0.0003	<0.0001	<0.001
Copper	2	mg/L	4	0	100	0.0035	0.0025	0.004
Lead	0.01	mg/L	4	0	100	0.0003	<0.0001	<0.0005
Manganese	0.5	mg/L	4	0	100	0.0078	0.0055	0.0111
Mercury	0.001	mg/L	4	0	100	0.00011	<0.00003	0.00029
Molybdenum	0.05	mg/L	4	0	100	0.0002	<0.0001	<0.0005
Nickel	0.02	mg/L	4	0	100	0.0003	<0.0001	<0.0005
Selenium	0.01	mg/L	4	0	100	0.0015	<0.0001	0.0036

Table 6.61.4-b Disinfection by product performance 2016-17

Disinfection by products – health regulated parameters (2016–17)								
Parameter	Limit	Unit	Samples	Exceedances	Performance %	Mean	Min.	Max.
Dichloroacetic acid	100	µg/L	4	0	100	1.5	1	2
Monochloroacetic acid	150	µg/L	4	0	100	<5	<3	<5
Trichloroacetic acid	100	µg/L	4	0	100	0.88	<1	<2
Total trihalomethanes	250	µg/L	4	0	100	11.55	5.2	16

6.61.5. Analysis of overall system performance (2016-17)

Table 6.61.5-a General physical performance 2016-17

General physical parameters (2016-17)					
Parameter	Unit	Guideline Value	Mean	Min	Max
Chlorine residual	mg/L	0.1 - <0.8	0.40	0.02	0.73
Colour True	HU	15	<1	<1	<1
pH	Units	6.5 – 8.5	6.94	6.50	7.54
Turbidity	NTU	1	0.83	0.42	5.31

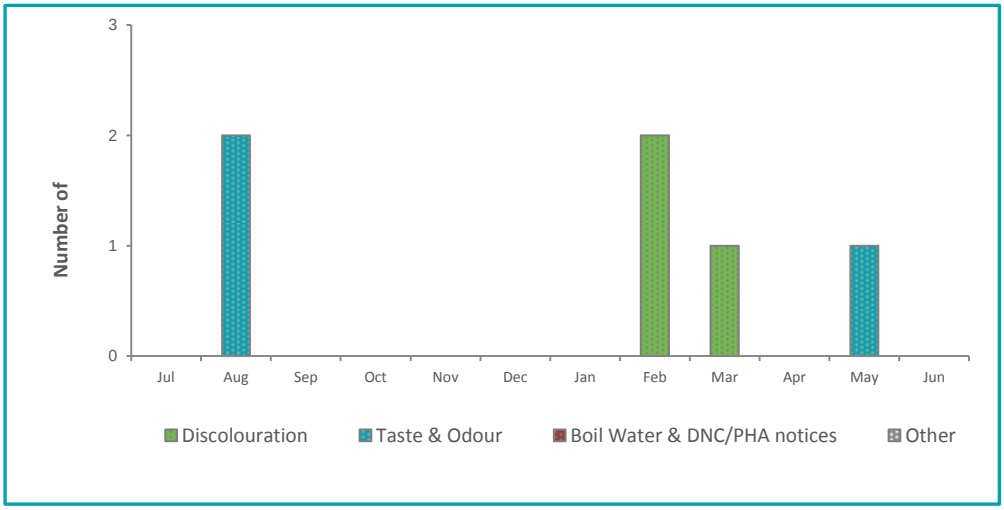


Figure 6.61.5-a Customer complaints by month and type

6.62. Swansea drinking water system

6.62.1. Summary of system status

Swansea drinking water system	
System status (as at 30 June 2017)	Potable
Total number of connections	792
Fluoride	Sodium fluoride

Performance overview against health targets (2016-17)

Indicator	Outcome	Compliant	Target	Sampling Events	Non-conformances
Microbiological	100.0%	☑	98.0%	104	0
Fluoride	100.0%	☑	100.0%	103	0
Metals	100.05	☑	100.0%	8	0
DBPs	100.0%	☑	100.0%	8	0

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

Overall system performance (2016-17)

Indicator	Occurrences	Details
Customer complaints	1	Discoloured water.
Public health warnings issued	0	
System incidents & issues	0	
Catchment and water source issues	0	

Current and future planned infrastructure and operational changes

Project	Description	Progress	Est. Delivery	Est. Spend
n/a	n/a	n/a	n/a	n/a

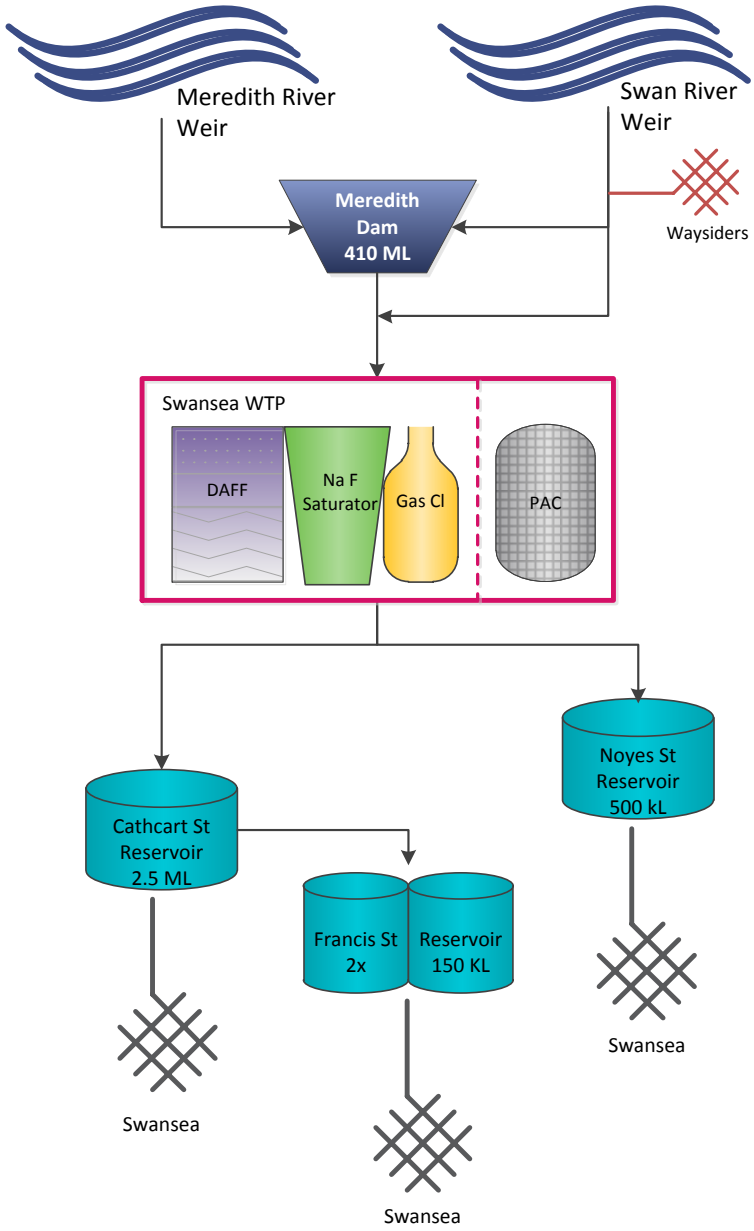


Figure 6.62.1-a Swansea system schematic

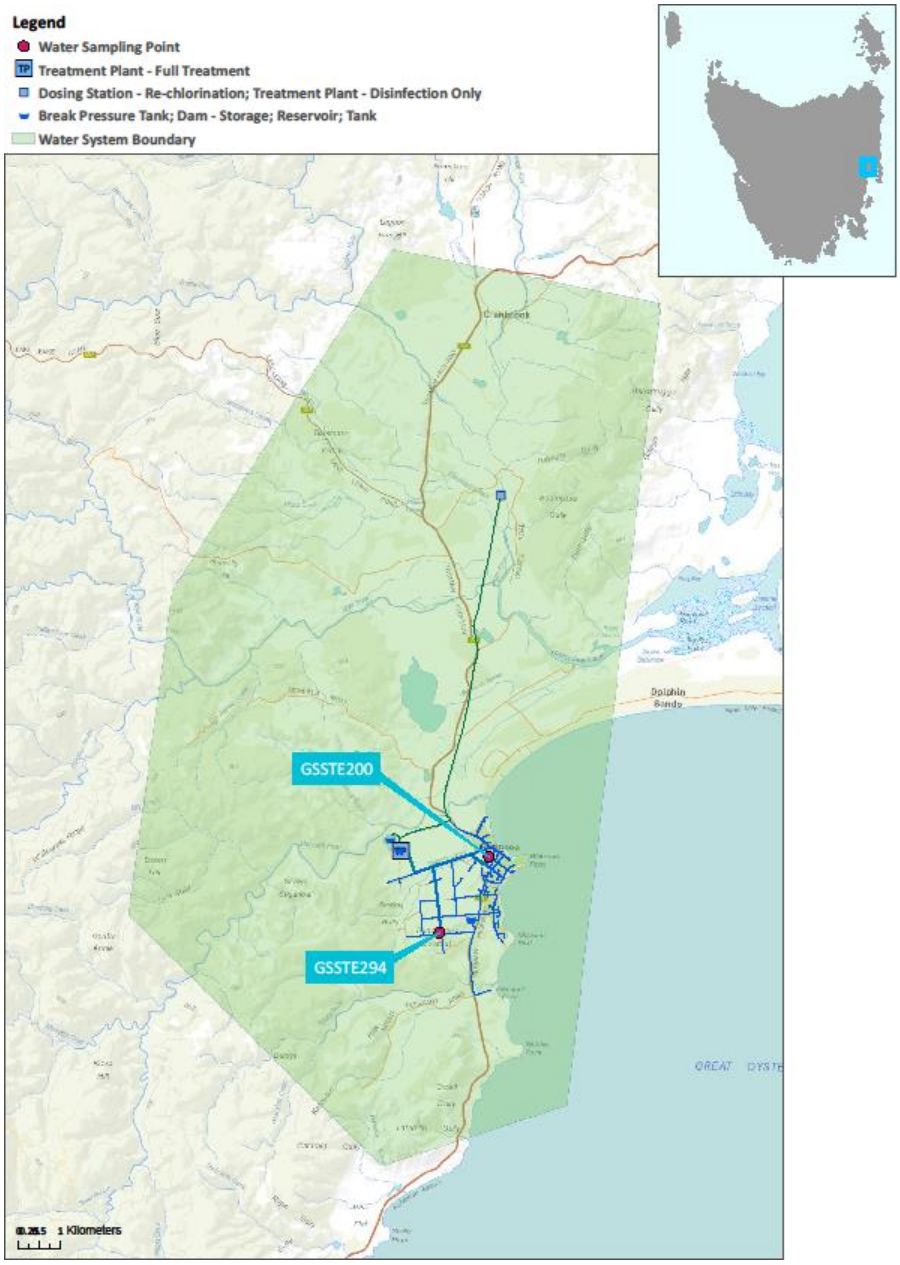


Figure 6.62.1-b Map of Swansea monitoring system

6.62.2. Summary of Annual Reticulation Compliance (2016–17)

Table 6.62.2-a Compliance sampling program

Planned compliance sampling program (2016-17)								
Site name	Site Code	Micros	Metals	DBP	Fluoride (Field)	Fluoride (Lab)	Chemical Profile	Process Chemicals
Swansea/Noyse St Reservoir	GSSTE200	W	Q	Q	W	M	Q	n/a
Swansea/Cathcart St Sampling Point	GSSTE294	W	Q	Q	W	n/a	Q	n/a
Number Planned Samples		**104**	**8**	**8**	**104**	**12**	**8**	**0**
Number Samples Tested		**104**	**8**	**8**	**103#**	**12**	**8**	**0**

- # Fluoride reading missed 19/4/17 due to sampling error.

6.62.3. Summary of current and historic performance (2012-17)

Table 6.62.3-a Historical health performance overview (5 year comparison)

Historical health performance overview (5 year comparison)					
Indicator	2012-13	2013-14	2014-15	2015-16	2016-17
Microbiological	100.0%	99.5%	100.0%	100.0%	100.0%
Fluoride	100.0%	100.0%	100.0%	100.0%	100.0%
Metals	100.0%	100.0%	100.0%	100.0%	100.0%
Disinfection by products	100.0%	100.0%	100.0%	100.0%	100.0%

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

Table 6.62.3-b Distribution fluoride testing overview (5 year comparison)

Distribution fluoride testing overview (5 year comparison)					
Indicator	**2012-13**	**2013-14**	**2014-15**	**2015-16**	**2016-17**
Exceeding 1.5 mg/L	0	0	0	0	0
Within target range (%)	Not reported	Not reported	78.8%	100.0%	97.1%
Mean dose (mg/L)	Not reported	Not reported	1.06	0.96	0.98

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

6.62.4. Analysis of current health performance (2016-17)

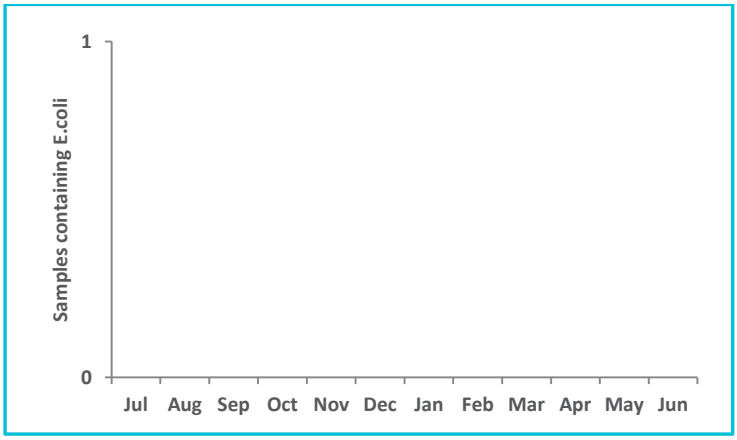


Figure 6.62.4-a Microbiological non-compliances by month (2016-17)

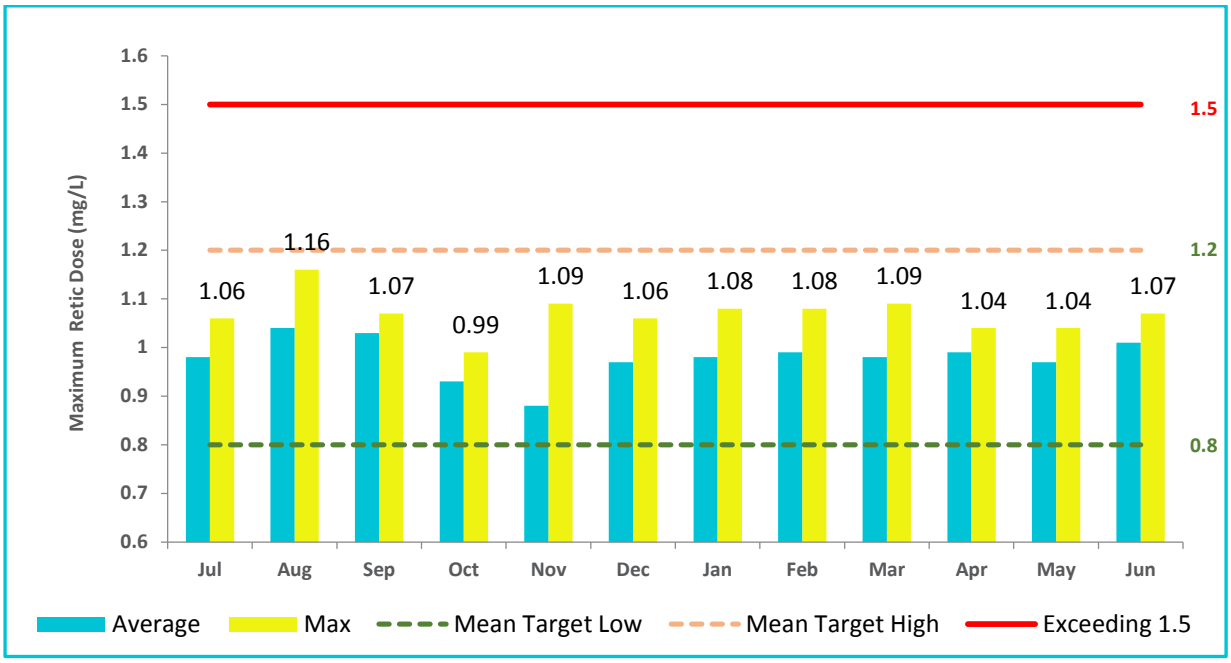


Figure 6.62.4-b Average reticulation fluoride dose by month (2016-17)

Table 6.62.4-a Metals performance 2016-17

Metals – health regulated parameters (2016–17)								
Parameter	**Limit**	**Unit**	**Samples**	**Exceedances**	**Performance %**	**Mean**	**Min.**	**Max.**
Antimony	0.003	mg/L	8	0	100	0.0006	<0.0005	0.0014
Arsenic	0.01	mg/L	8	0	100	0.0005	<0.0003	<0.001
Barium	2	mg/L	8	0	100	0.0117	0.0075	0.017
Cadmium	0.002	mg/L	8	0	100	0.0002	<0.0001	0.0005
Chromium	0.05	mg/L	8	0	100	0.0003	<0.0001	<0.001
Copper	2	mg/L	8	0	100	0.0232	0.0089	0.0421
Lead	0.01	mg/L	8	0	100	0.0009	0.0002	0.0049
Manganese	0.5	mg/L	8	0	100	0.0007	0.0002	0.0013
Mercury	0.001	mg/L	8	0	100	0.0001	<0.00003	0.00021
Molybdenum	0.05	mg/L	8	0	100	0.0002	<0.0001	<0.0005
Nickel	0.02	mg/L	8	0	100	0.0004	0.0002	0.0006
Selenium	0.01	mg/L	8	0	100	0.0006	<0.0001	<0.002

Table 6.62.4-b Disinfection by product performance 2016-17

Disinfection by products – health regulated parameters (2016–17)								
Parameter	Limit	Unit	Samples	Exceedances	Performance %	Mean	Min.	Max.
Dichloroacetic acid	100	µg/L	8	0	100	6.81	<1	15
Monochloroacetic acid	150	µg/L	8	0	100	<5	<3	<5
Trichloroacetic acid	100	µg/L	8	0	100	6.88	<1	15
Total trihalomethanes	250	µg/L	8	0	100	35.88	26	44

6.62.5. Analysis of overall system performance (2016-17)

Table 6.62.5-a General physical performance 2016-17

General physical parameters (2016-17)					
Parameter	Unit	Guideline Value	Mean	Min	Max
Chlorine residual	mg/L	0.1 - <0.8	0.54	0.04	1.26
Colour True	HU	15	<1	<1	<1
pH	Units	6.5 – 8.5	7.14	6.82	7.44
Turbidity	NTU	1	0.36	0.10	3.21

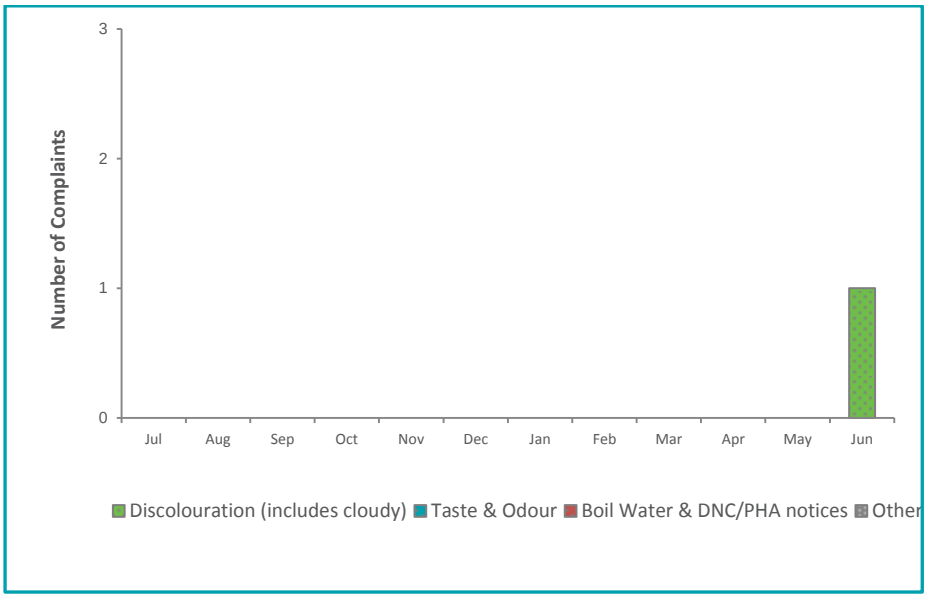


Figure 6.62.5-a Customer complaints by month and type

6.63. Triabunna drinking water system

6.63.1. Summary of system status

Triabunna drinking water system	
System status (as at 30 June 2017)	Potable
Total number of connections	520
Fluoride	Sodium fluoride

Performance overview against health targets (2016-17)

Indicator	Outcome	Compliant	Target	Sampling Events	Non-conformances
Microbiological	100.0%	☑	98.0%	52	0
Fluoride	100.0%	☑	100.0%	104	0
Metals	100.0%	☑	100.0%	4	0
DBPs	100.0%	☑	100.0%	4	0

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

Overall system performance (2016-17)

Indicator	Occurrences	Details
Customer complaints	3	Discoloured water, taste & odour.
Public health warnings issued	0	
System incidents & issues	0	
Catchment and water source issues	0	

Current and future planned infrastructure and operational changes

Project	Description	Progress	Est. Delivery	Est. Spend
n/a	n/a	n/a	n/a	n/a

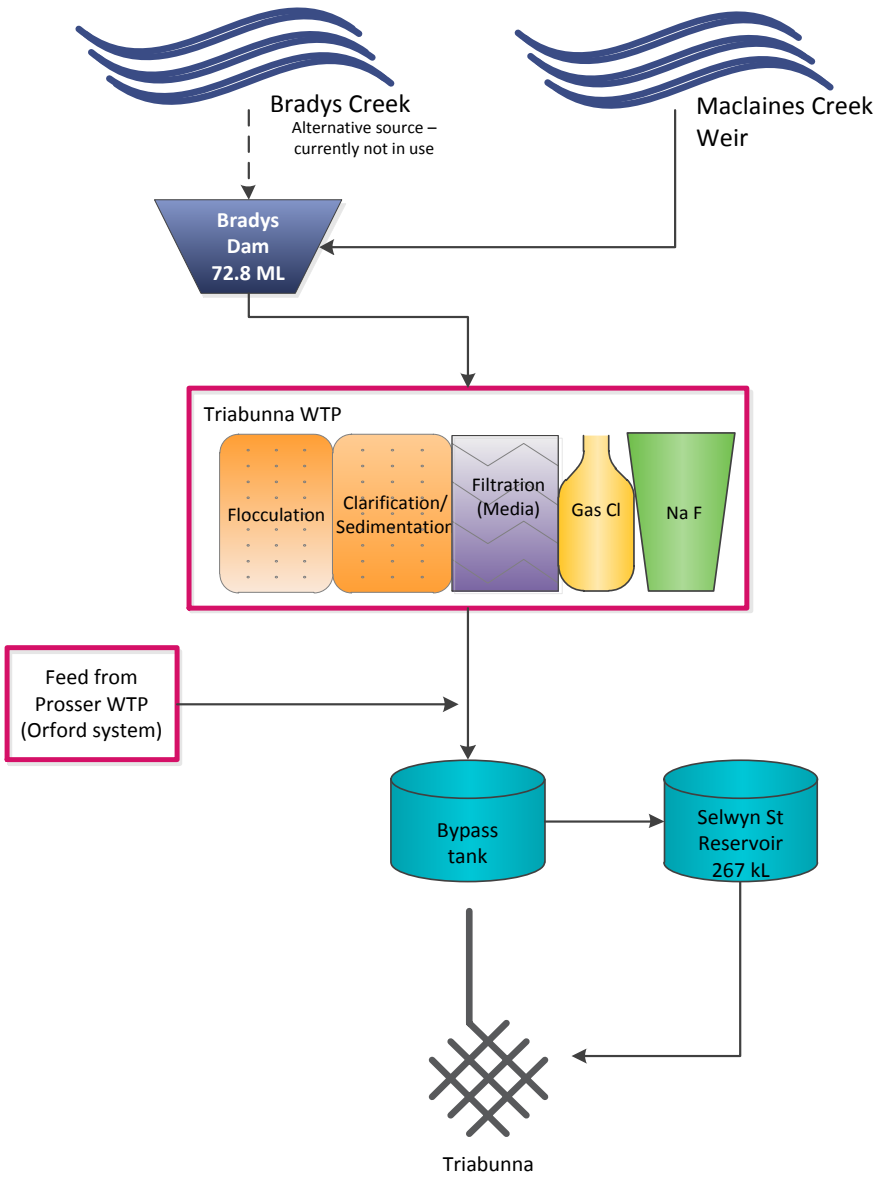


Figure 6.63.1-a Triabunna system schematic

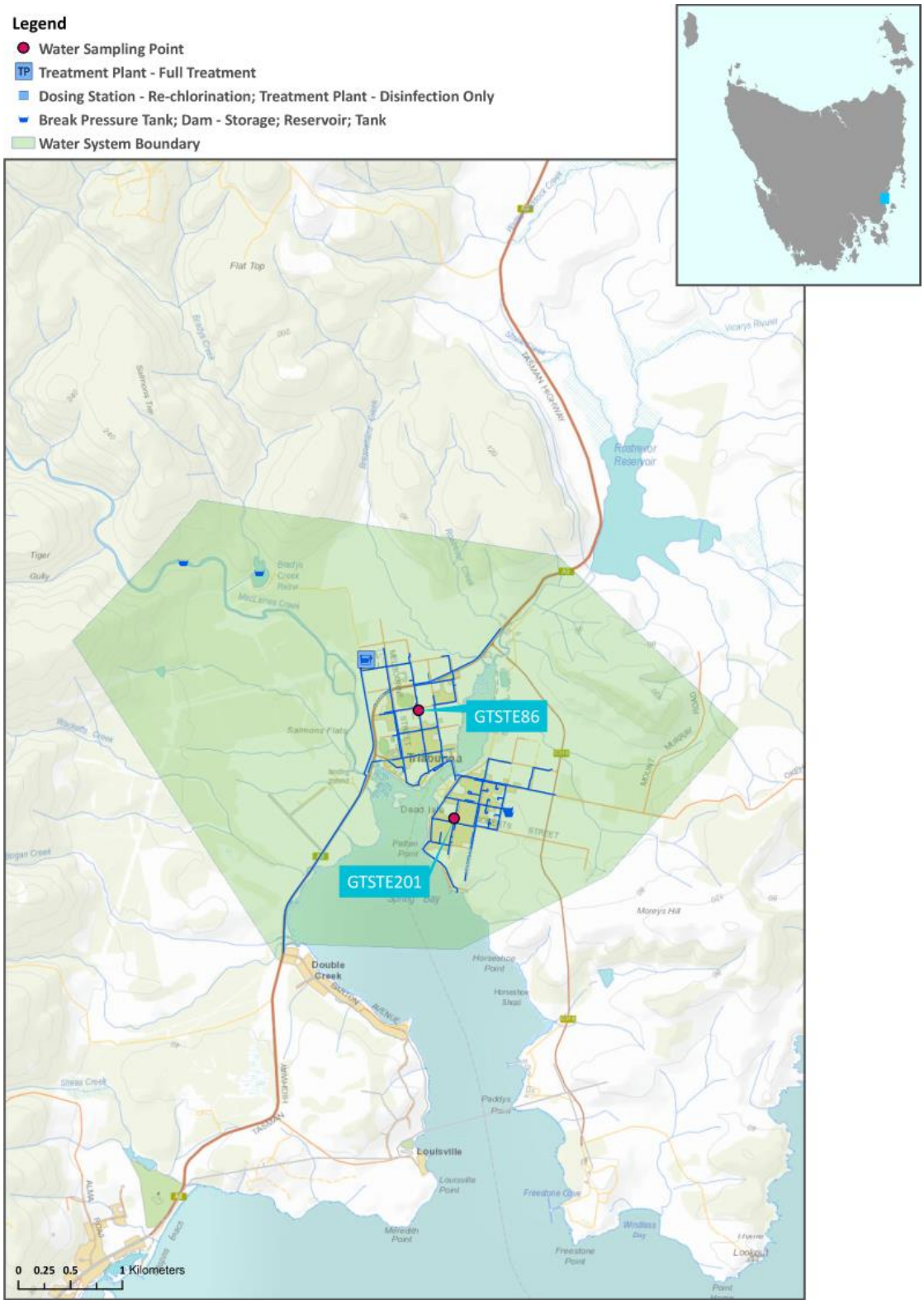


Figure 6.63.1-b Map of Triabunna monitoring system

6.63.2. Summary of Annual Reticulation Compliance (2016–17)

Table 6.63.2-a Compliance sampling program

Planned compliance sampling program (2016-17)								
Site name	Site Code	Micros	Metals	DBP	Fluoride (Field)	Fluoride (Lab)	Chemical Profile	Process Chemicals
Triabunna/Ada St, Sample Tap	GTSTE201	n/a	n/a	n/a	W	n/a	n/a	n/a
Triabunna/Cemetry, Charles St, Sample Tap	GTSTE86	W	Q	Q	W	M	Q	n/a
Number Planned Samples		**52**	**4**	**4**	**104**	**12**	**4**	**0**
Number Samples Tested		**52**	**4**	**4**	**104**	**12**	**4**	**0**

6.63.3. Summary of current and historic performance (2012-17)

Table 6.63.3-a Historical health performance overview (5 year comparison)

Historical health performance overview (5 year comparison)					
Indicator	2012-13	2013-14	2014-15	2015-16	2016-17
Microbiological	100.0%	100.0%	100.0%	100.0%	100.0%
Fluoride	100.0%	100.0%	100.0%	100.0%	100.0%
Metals	100.0%	100.0%	100.0%	100.0%	100.0%
Disinfection by products	100.0%	100.0%	100.0%	100.0%	100.0%

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

Table 6.63.3-b Distribution fluoride testing overview (5 year comparison)

Distribution fluoride testing overview (5 year comparison)					
Indicator	**2012-13**	**2013-14**	**2014-15**	**2015-16**	**2016-17**
Exceeding 1.5 mg/L	0	0	0	0	0
Within target range (%)	Not Required	Not Reported	89.1%	97.2%	96.2%
Mean dose (mg/L)	Not Required	Not Reported	1.00	1.05	1.00

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

6.63.4. Analysis of current health performance (2016-17)

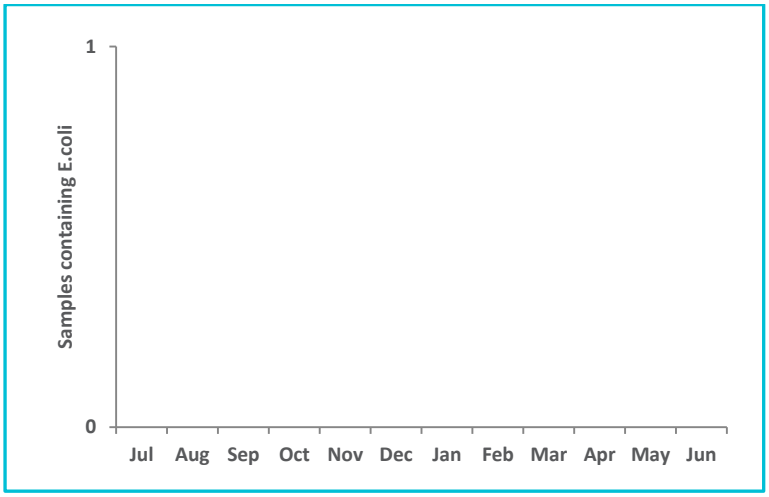


Figure 6.63.4-a Microbiological non-compliances by month (2016-17)

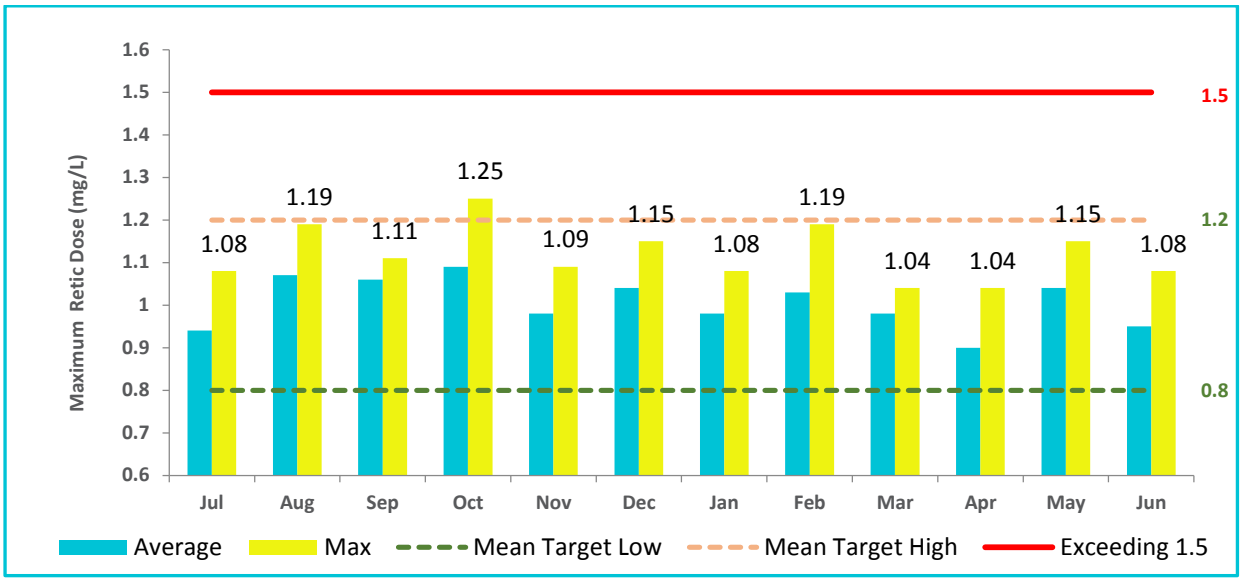


Figure 6.63.4-b Average reticulation fluoride dose by month (2016-17)

Table 6.63.4-a Metals performance 2016-17

Metals – health regulated parameters (2016–17)								
Parameter	**Limit**	**Unit**	**Samples**	**Exceedances**	**Performance %**	**Mean**	**Min.**	**Max.**
Antimony	0.003	mg/L	4	0	100	<0.0005	<0.0005	<0.0005
Arsenic	0.01	mg/L	4	0	100	0.0005	<0.0003	<0.001
Barium	2	mg/L	4	0	100	0.0132	0.01	0.0162
Cadmium	0.002	mg/L	4	0	100	<0.0001	<0.0001	<0.0001
Chromium	0.05	mg/L	4	0	100	0.0003	<0.0001	<0.001
Copper	2	mg/L	4	0	100	0.0046	0.004	0.005
Lead	0.01	mg/L	4	0	100	0.0007	0.0005	0.0008
Manganese	0.5	mg/L	4	0	100	0.0027	0.001	0.0064
Mercury	0.001	mg/L	4	0	100	0.00014	0.00004	0.00039
Molybdenum	0.05	mg/L	4	0	100	0.0002	<0.0001	<0.0005
Nickel	0.02	mg/L	4	0	100	0.0004	<0.0001	0.0005
Selenium	0.01	mg/L	4	0	100	0.0006	<0.0001	<0.002

Table 6.63.4-b Disinfection by product performance 2016-17

Disinfection by products – health regulated parameters (2016–17)								
Parameter	Limit	Unit	Samples	Exceedances	Performance %	Mean	Min.	Max.
Dichloroacetic acid	100	µg/L	4	0	100	10.75	3	31
Monochloroacetic acid	150	µg/L	4	0	100	<5	<3	<5
Trichloroacetic acid	100	µg/L	4	0	100	13.25	2	33
Total trihalomethanes	150	µg/L	4	0	100	76.25	43	112

6.63.5. Analysis of overall system performance (2016-17)

Table 6.63.5-a General physical performance 2016-17

General physical parameters (2016-17)					
Parameter	Unit	Guideline Value	Mean	Min	Max
Chlorine residual	mg/L	0.1 - <0.8	0.91	0.16	1.32
Colour True	HU	15	1	<1	2
pH	Units	6.5 – 8.5	7.24	6.21	7.83
Turbidity	NTU	1	0.35	0.11	1.14

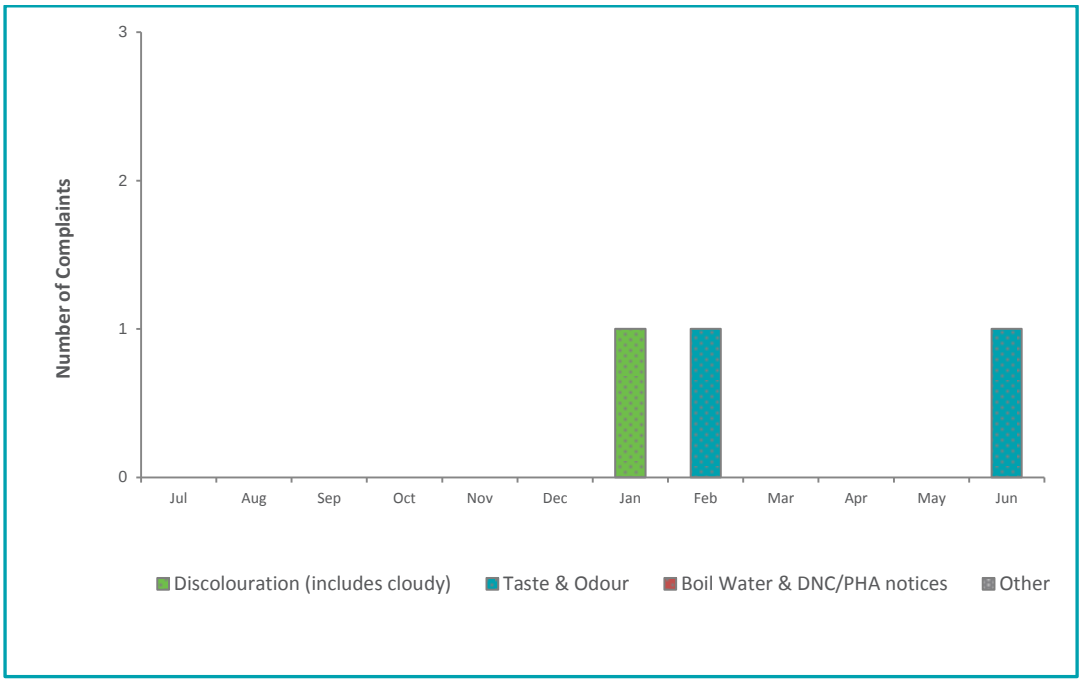


Figure 6.63.5-b Customer complaints by month and type

6.64. Tullah drinking water system

6.64.1. Summary of system status

Tullah drinking water system	
System status (as at 30 June 2017)	Potable
Total number of connections	243
Fluoride	n/a

Performance overview against health targets (2016-17)

Indicator	Outcome	Compliant	Target	Sampling Events	Non-conformances
Microbiological	100.0%	☑	98.0%	206	0
Fluoride	n/a	n/a	n/a	n/a	n/a
Metals	100.0%	☑	100.0%	16	0
DBPs	100.0%	☑	100.0%	12	0

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

Overall system performance (2016-17)

Indicator	Occurrences	Details
Customer complaints	1	Discoloured water.
Public health warnings issued	0	
System incidents & issues	0	
Catchment and water source issues	0	

Current and future planned infrastructure and operational changes

Project	Description	Progress	Est. Delivery	Est. Spend
n/a	n/a	n/a	n/a	n/a

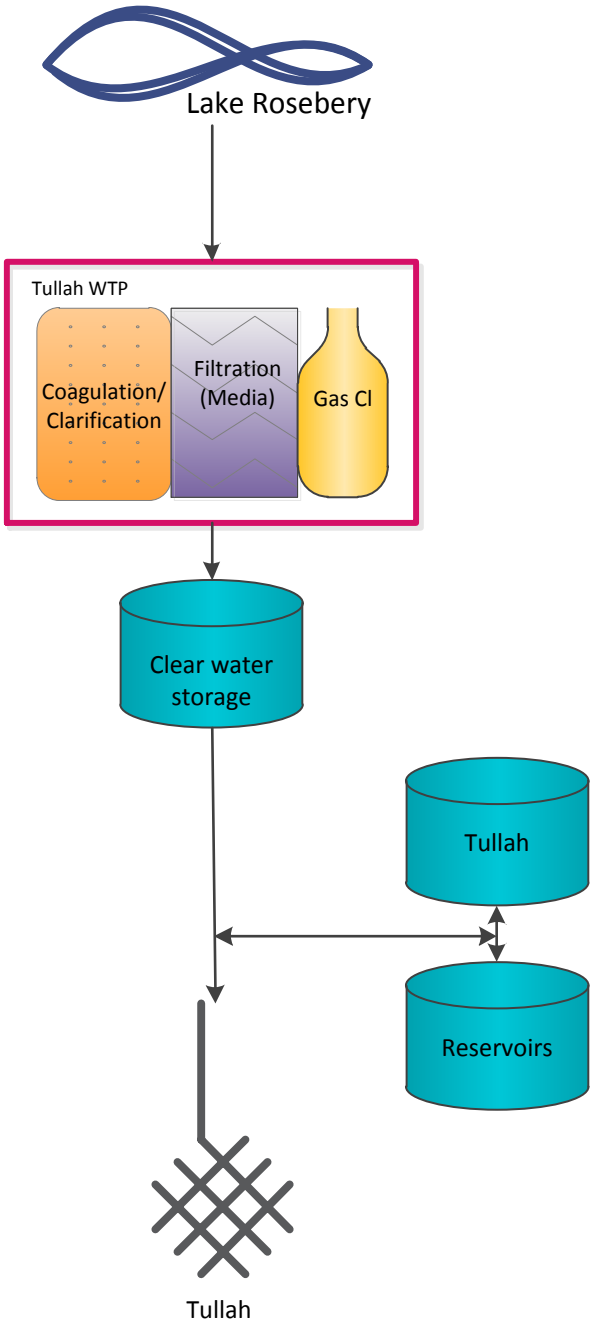


Figure 6.64.1-a Tullah system schematic

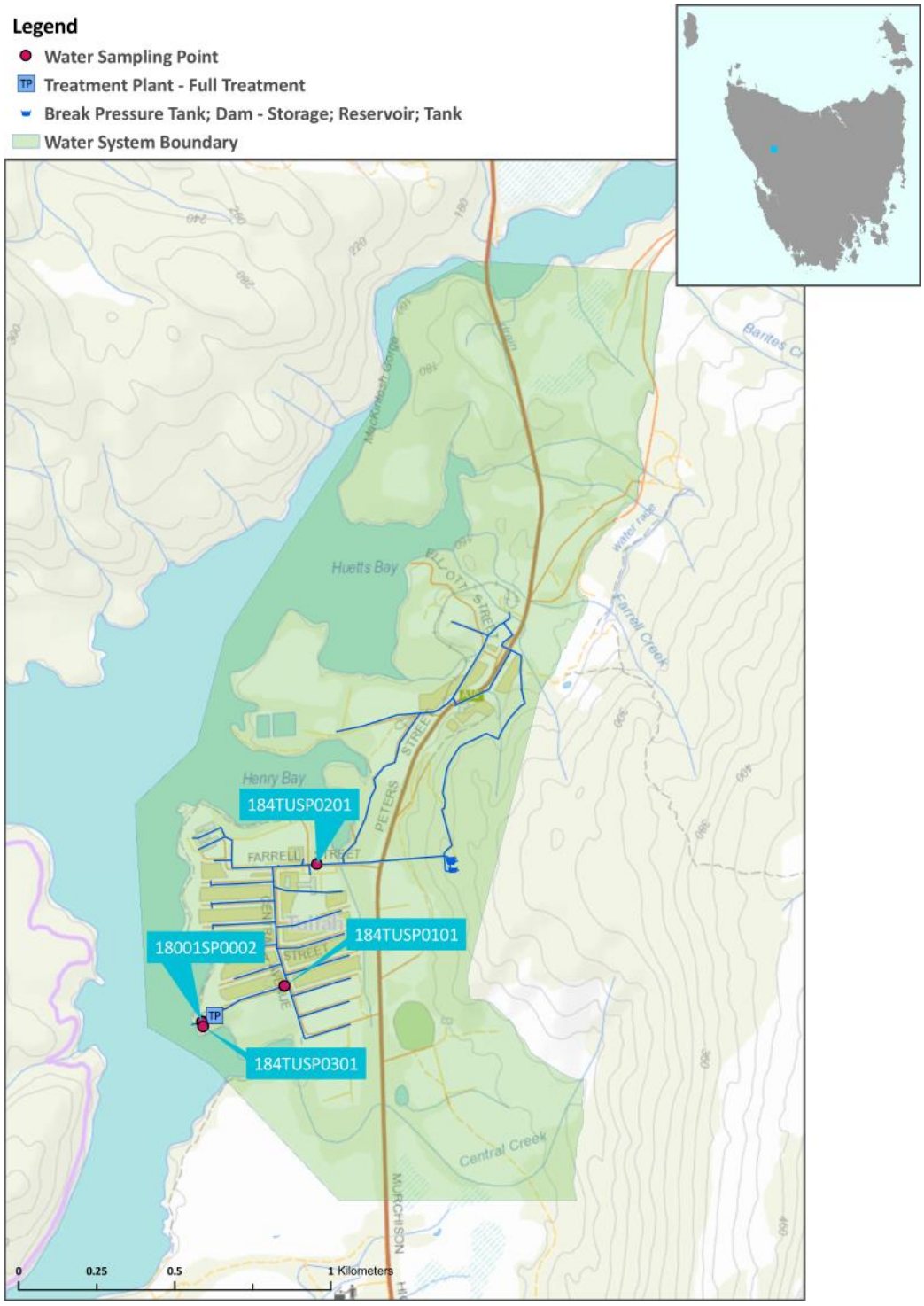


Figure 6.64.1-b Map of Tullah monitoring system

6.64.2. Summary of Annual Reticulation Compliance (2016–17)

Table 6.64.2-a Compliance sampling program

Planned compliance sampling program (2016-17)								
Site name	**Site Code**	**Micros**	**Metals**	**DBP**	**Fluoride (Field)**	**Fluoride (Lab)**	**Chemical Profile**	**Process Chemicals**
Tullah/Clear Water Outlet Sample Point	18001SP0002	W	n/a	n/a	n/a	n/a	Q	M
Tullah/Bluff St Sample Point 1	184TUSP0101	W	Q	n/a	n/a	n/a	Q	n/a
Tullah/Farrell Sample Point 2	184TUSP0201	W	n/a	M	n/a	n/a	n/a	n/a
Tullah/WTP Water Storage Sample Point	184TUSP0301	W	n/a	n/a	n/a	n/a	n/a	n/a
Number Planned Samples		**208**	**4**	**12**	**0**	**0**	**8**	**12**
Number Samples Tested		**206#**	**4**	**12**	**0**	**0**	**8**	**12**

- # Two micro samples not taken from site 18001SP0002: Tullah/Clear Water Outlet Sample Point on 12/7/2016 and 10/1/2017 due to site inaccessibility.

6.64.3. Summary of current and historic performance (2012-17)

Table 6.64.3-a Historical health performance overview (5 year comparison)

Historical health performance overview (5 year comparison)					
Indicator	**2012-13**	**2013-14**	**2014-15**	**2015-16**	**2016-17**
Microbiological	100.0%	98.9%	100.0%	100.0%	100.0%
Fluoride	n/a	n/a	n/a	n/a	n/a
Metals	n/a	100.0%	100.0%	100.0%	100.0%
Disinfection by products	n/a	100.0%	99.2%	96.3%	100.0%

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

6.64.4. Analysis of current health performance (2016-17)

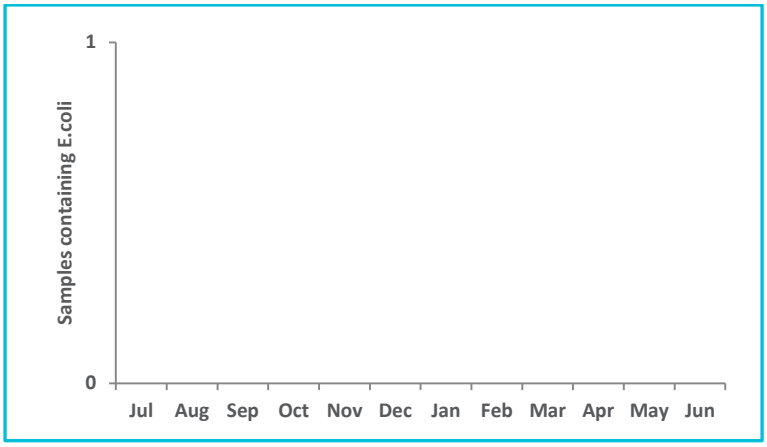


Figure 6.64.4-a Microbiological non-compliances by month (2016-17)

Table 6.64.4-a Metals performance 2016-17

Metals – health regulated parameters (2016–17)								
Parameter	Limit	Unit	Samples	Exceedances	Performance %	Mean	Min.	Max.
Antimony	0.003	mg/L	4	0	100	<0.0005	<0.0005	<0.0005
Arsenic	0.01	mg/L	16	0	100	0.0006	<0.0003	<0.001
Barium	2	mg/L	16	0	100	0.0044	0.0034	0.0054
Cadmium	0.002	mg/L	16	0	100	0.0001	<0.0001	0.0001
Chromium	0.05	mg/L	16	0	100	0.0005	<0.0001	<0.001
Copper	2	mg/L	4	0	100	0.0007	<0.0001	<0.001
Lead	0.01	mg/L	16	0	100	0.0003	<0.0001	0.0005
Manganese	0.5	mg/L	16	0	100	0.0099	0.0058	0.0168
Mercury	0.001	mg/L	16	0	100	0.00007	<0.00003	0.0003
Molybdenum	0.05	mg/L	4	0	100	0.0003	<0.0001	<0.0005
Nickel	0.02	mg/L	16	0	100	0.0003	<0.0001	<0.0005
Selenium	0.01	mg/L	16	0	100	0.0009	<0.0001	<0.002

Table 6.64.4-b Disinfection by product performance 2016-17

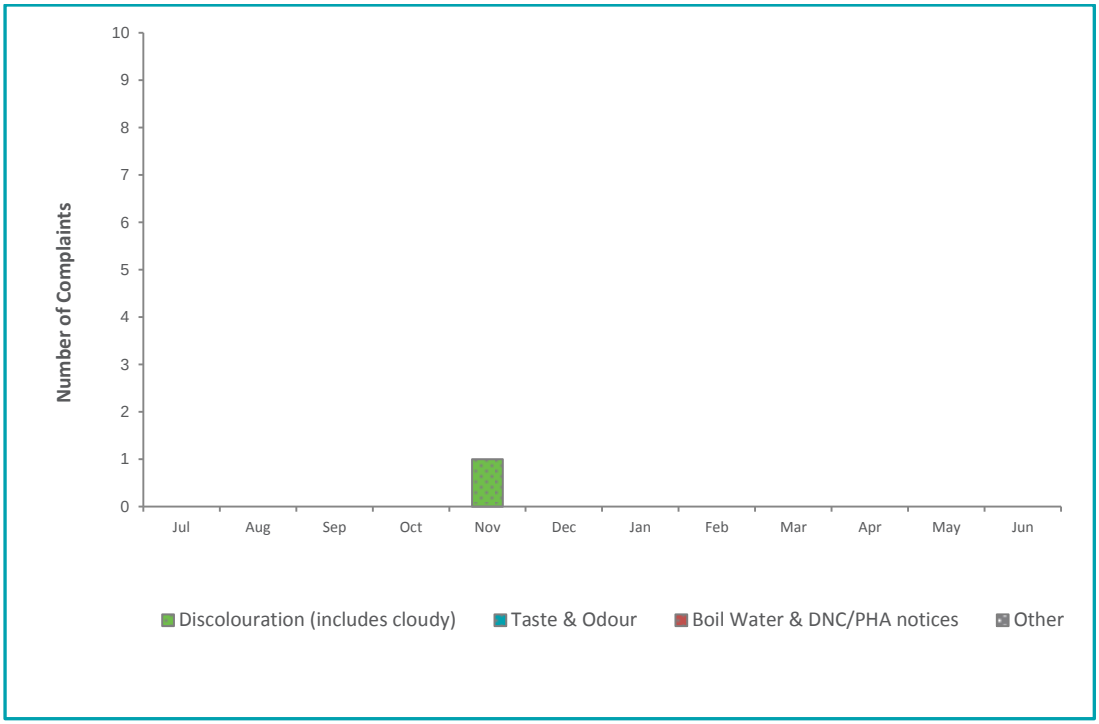
Disinfection by products – health regulated parameters (2016–17)								
Parameter	Limit	Unit	Samples	Exceedances	Performance %	Mean	Min.	Max.
Dichloroacetic acid	100	µg/L	12	0	100	8.17	<1	21
Monochloroacetic acid	150	µg/L	12	0	100	<5	<3	<5
Trichloroacetic acid	100	µg/L	12	0	100	37.67	15	51
Total trihalomethanes	250	µg/L	12	0	100	108.92	87	130

6.64.5. Analysis of overall system performance (2016-17)

Table 6.64.5-a General physical performance 2016-17

General physical parameters (2016-17)					
Parameter	Unit	Guideline Value	Mean	Min	Max
Chlorine residual	mg/L	0.1 - <0.8	0.95	0.02	3.27
Colour True	HU	15	1.25	<1	2
pH	Units	6.5 – 8.5	7.40	7.07	9.69
Turbidity	NTU	1	0.55	0.21	3.55

Figure 6.64.5-a Customer complaints by month and type



6.65. Tunbridge drinking water system

6.65.1. Summary of system status

Tunbridge drinking water system	
System status (as at 30 June 2017)	Potable
Total number of connections	106
Fluoride	n/a

Performance overview against health targets (2016-17)

Indicator	Outcome	Compliant	Target	Sampling Events	Non-conformances
Microbiological	100.0%	☑	98.0%	52	0
Fluoride	n/a	n/a	n/a	n/a	n/a
Metals	100.0%	☑	100.0%	4	0
DBPs	100.0%	☑	100.0%	4	0

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

Overall system performance (2016-17)

Indicator	Occurrences	Details
Customer complaints	2	Taste & odour.
Public health warnings issued	0	
System incidents & issues	0	
Catchment and water source issues	10	Trace levels of pesticides were collected in the catchment. All results were well below the ADWG health limits.

Current and future planned infrastructure and operational changes

Project	Description	Progress	Est. Delivery	Est. Spend
n/a	n/a	n/a	n/a	n/a

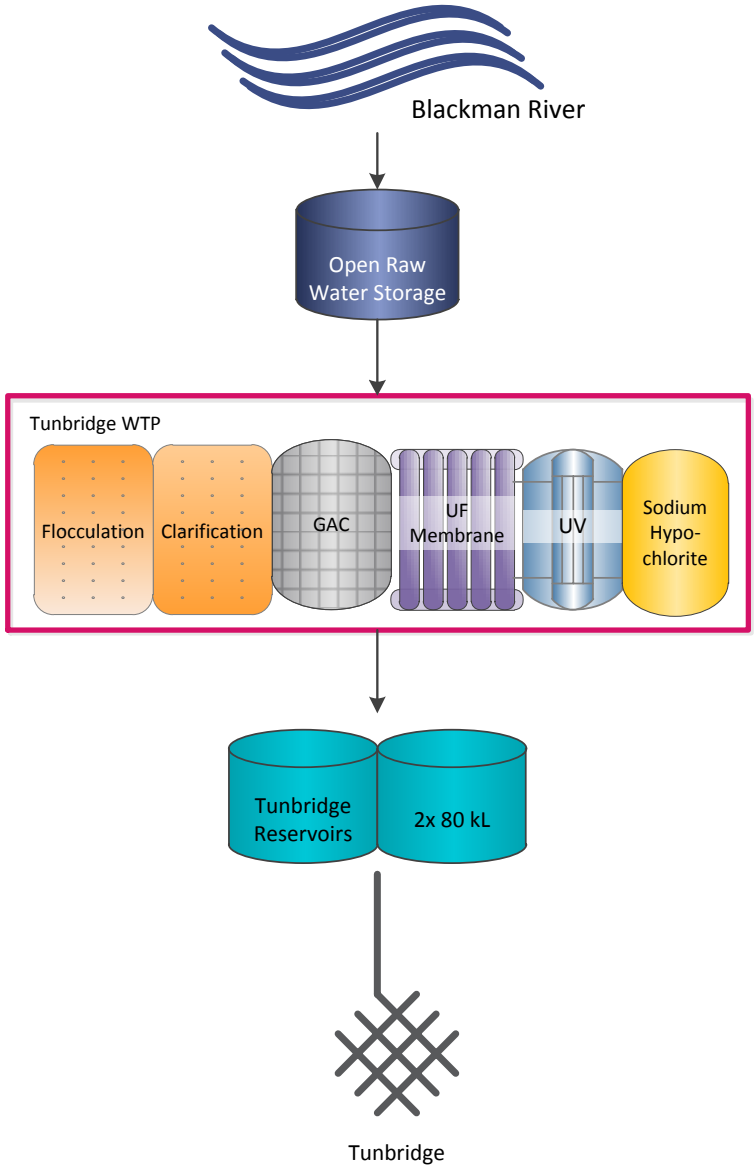


Figure 6.65.1-a Tunbridge system schematic

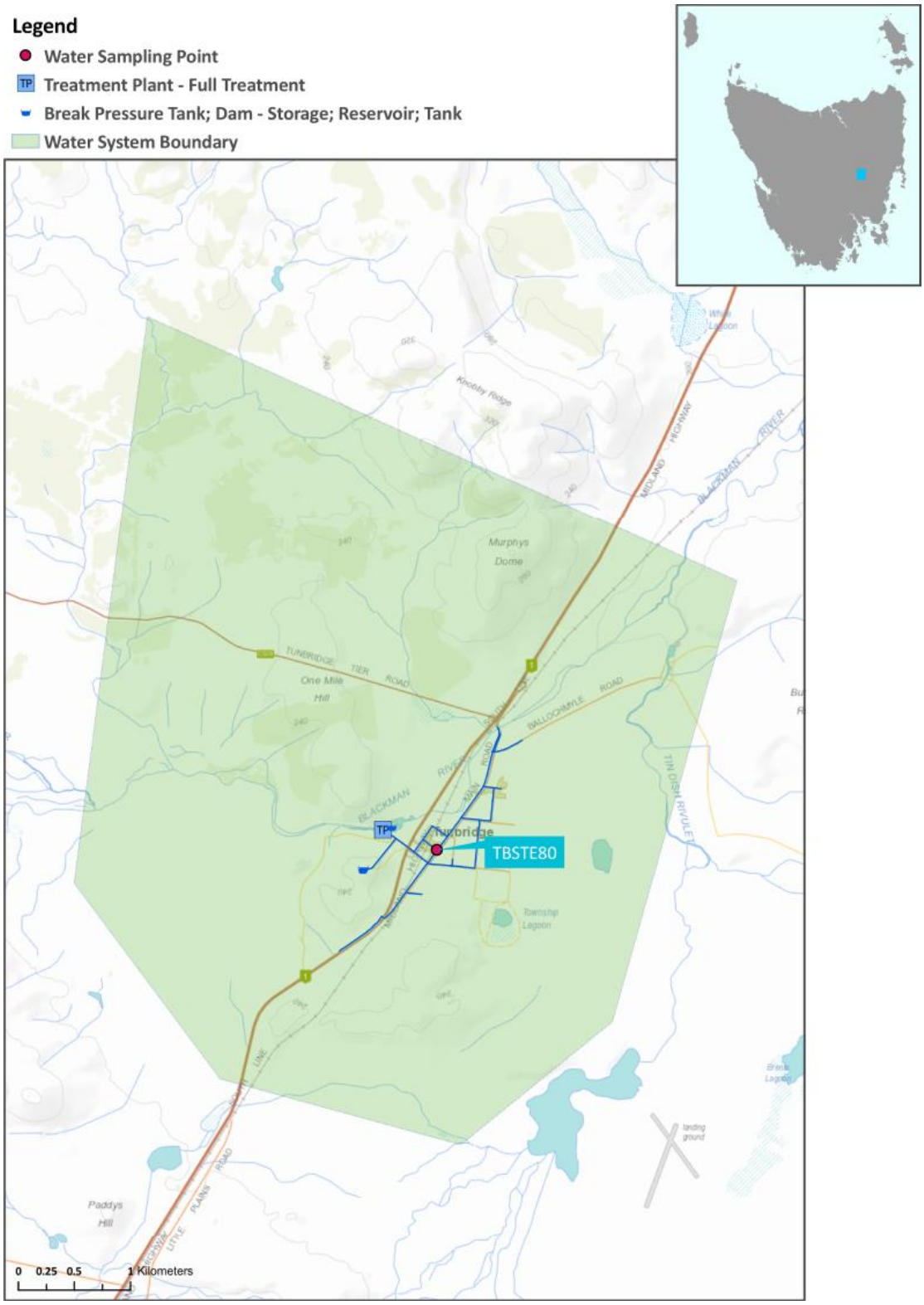


Figure 6.65.1-b Map of Tunbridge monitoring system

6.65.2. Summary of Annual Reticulation Compliance (2016–17)

Table 6.65.2-a Compliance sampling program

Planned compliance sampling program (2016-17)								
Site name	Site Code	Micros	Metals	DBP	Fluoride (Field)	Fluoride (Lab)	Chemical Profile	Process Chemicals
Tunbridge/Tunbridge St Sample Post	TBSTE80	W	Q	Q	n/a	n/a	Q	n/a
Number Planned Samples		**52**	**4**	**4**	**0**	**0**	**4**	**0**
Number Samples Tested		**52**	**4**	**4**	**0**	**0**	**4**	**0**

6.65.3. Summary of current and historic performance (2012-17)

Table 6.65.3-a Historical health performance overview (5 year comparison)

Historical health performance overview (5 year comparison)					
Indicator	2012-13	2013-14	2014-15	2015-16	2016-17
Microbiological	100.0%	100.0%	100.0%	100.0%	100.0%
Fluoride	n/a	n/a	n/a	n/a	n/a
Metals	100.0%	100.0%	100.0%	100.0%	100.0%
Disinfection by products	98.0%	98.0%	98.0%	100.0%	100.0%

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

6.65.4. Analysis of current health performance (2016-17)

Figure 6.65.4-a Microbiological non-compliances by month (2016-17)

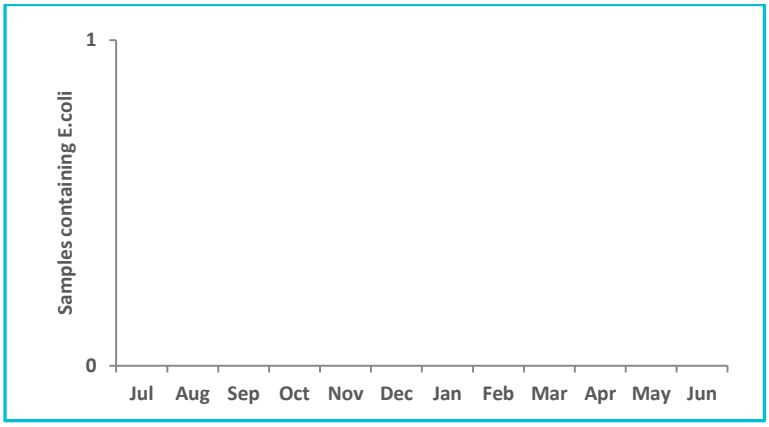


Table 6.65.4-a Metals performance 2016-17

Metals – health regulated parameters (2016–17)								
Parameter	Limit	Unit	Samples	Exceedances	Performance %	Mean	Min.	Max.
Antimony	0.003	mg/L	4	0	100	<0.0005	<0.0005	<0.0005
Arsenic	0.01	mg/L	4	0	100	0.0005	<0.0003	<0.001
Barium	2	mg/L	4	0	100	0.0142	0.0098	0.0176
Cadmium	0.002	mg/L	4	0	100	<0.0001	<0.0001	<0.0001
Chromium	0.05	mg/L	4	0	100	0.0003	<0.0001	<0.001
Copper	2	mg/L	4	0	100	0.0048	0.003	0.0058
Lead	0.01	mg/L	4	0	100	0.0005	0.0003	0.0006
Manganese	0.5	mg/L	4	0	100	0.0004	<0.0001	<0.001
Mercury	0.001	mg/L	4	0	100	0.00008	<0.00003	0.00019
Molybdenum	0.05	mg/L	4	0	100	0.0002	<0.0001	<0.0005
Nickel	0.02	mg/L	4	0	100	0.0003	<0.0001	<0.0005
Selenium	0.01	mg/L	4	0	100	0.0006	<0.0001	<0.002

Table 6.65.4-b Disinfection by product performance 2016-17

Disinfection by products – health regulated parameters (2016–17)								
Parameter	Limit	Unit	Samples	Exceedances	Performance %	Mean	Min.	Max.
Dichloroacetic acid	100	µg/L	4	0	100	6.75	4	8
Monochloroacetic acid	150	µg/L	4	0	100	<5	<3	<5
Trichloroacetic acid	100	µg/L	4	0	100	5.5	3	9
Total trihalomethanes	250	µg/L	4	0	100	109.25	95	130

6.65.5. Analysis of overall system performance (2016-17)

Table 6.65.5-a General physical performance 2016-17

General physical parameters (2016-17)					
Parameter	Unit	Guideline Value	Mean	Min	Max
Chlorine residual	mg/L	0.1 - <0.8	0.24	0.02	1.04
Colour True	HU	15	1.5	<1	2
pH	Units	6.5 – 8.5	8.09	7.93	8.31
Turbidity	NTU	1	0.17	0.06	0.62

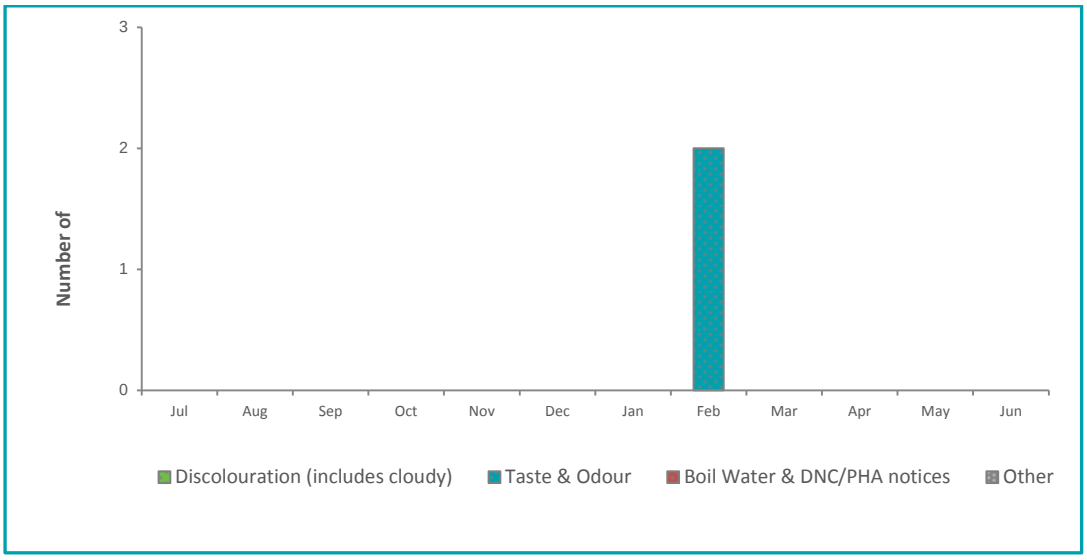


Figure 6.65.5-a Customer complaints by month and type

6.66. Waratah drinking water system

6.66.1. Summary of system status

Waratah drinking water system	
System status (as at 30 June 2017)	Potable
Total number of connections	140
Fluoride	Sodium fluoride

Performance overview against health targets (2016-17)

Indicator	Outcome	Compliant	Target	Sampling Events	Non-conformances
Microbiological	100.0%	☑	98.0%	156	0
Fluoride	100.0%	☑	100.0%	52	0
Metals	100.0%	☑	100.0%	16	0
DBPs	100.0%	☑	100.0%	4	0

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

Overall system performance (2016-17)

Indicator	Occurrences	Details
Customer complaints	4	Discoloured water, taste & odour.
Public health warnings issued	0	
System incidents & issues	0	
Catchment and water source issues	0	

Current and future planned infrastructure and operational changes

Project	Description	Progress	Est. Delivery	Est. Spend
n/a	n/a	n/a	n/a	n/a

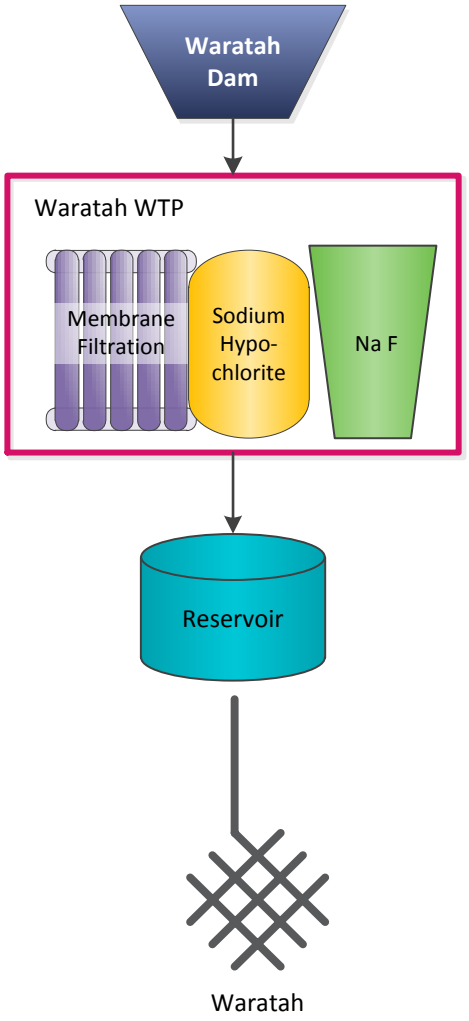


Figure 6.66.1-a Waratah system schematic

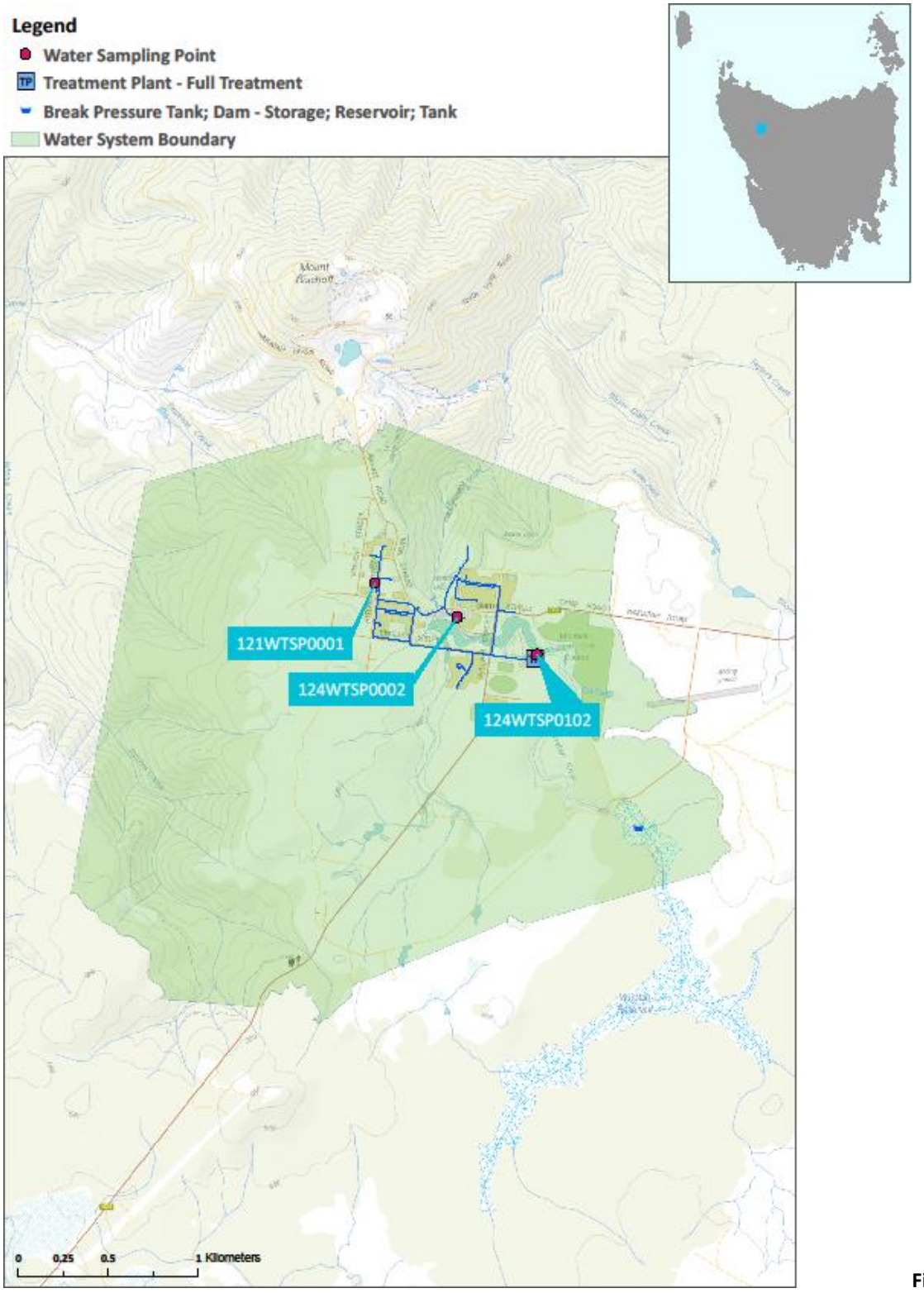


Figure 6.66.1-b Map of Waratah monitoring system

6.66.2. Summary of Annual Reticulation Compliance (2016–17)

Table 6.66.2-a Compliance sampling program

Planned compliance sampling program (2016-17)								
Site name	Site Code	Micros	Metals	DBP	Fluoride (Field)	Fluoride (Lab)	Chemical Profile	Process Chemicals
Waratah/School Sample Point	121WTSP0001	W	n/a	n/a	n/a	n/a	n/a	n/a
Waratah/Caravan Park Sample Point	124WTSP0002	W	Q	Q	W	M	Q	n/a
Waratah/WTP Sample Point	124WTSP0102	W	n/a	n/a	n/a	n/a	Q	M
Number Planned Samples		**156**	**4**	**4**	**52**	**12**	**8**	**12**
Number Samples Tested		**156**	**4**	**4**	**52**	**12**	**8**	**12**

6.66.3. Summary of current and historic performance (2012-17)

Table 6.66.3-a Historical health performance overview (5 year comparison)

Historical health performance overview (5 year comparison)					
Indicator	2012-13	2013-14	2014-15	2015-16	2016-17
Microbiological	100.0%	100.0%	99.1%	100.0%	100.0%
Fluoride	n/a	n/a	100.0%	100.0%	100.0%
Metals	n/a	100.0%	100.0%	100.0%	100.0%
Disinfection by products	n/a	100.0%	100.0%	100.0%	100.0%

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

Table 6.66.3-b Distribution fluoride testing overview (5 year comparison)

Distribution fluoride testing overview (5 year comparison)					
Indicator	**2012-13**	**2013-14**	**2014-15**	**2015-16**	**2016-17**
Exceeding 1.5 mg/L	n/a	n/a	0	0	0
Within target range (%)	n/a	n/a	93.7%	100.0%	96.2%
Mean dose (mg/L)	n/a	n/a	0.95	0.94	0.95

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

6.66.4. Analysis of current health performance (2016-17)

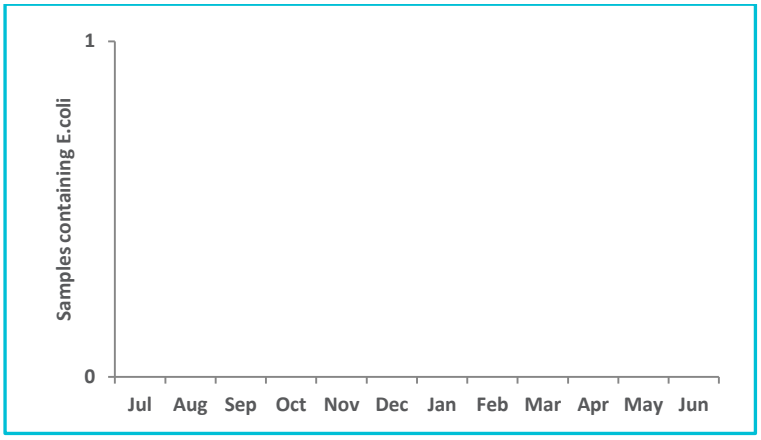


Figure 6.66.4-a Microbiological non-compliances by month (2016-17)

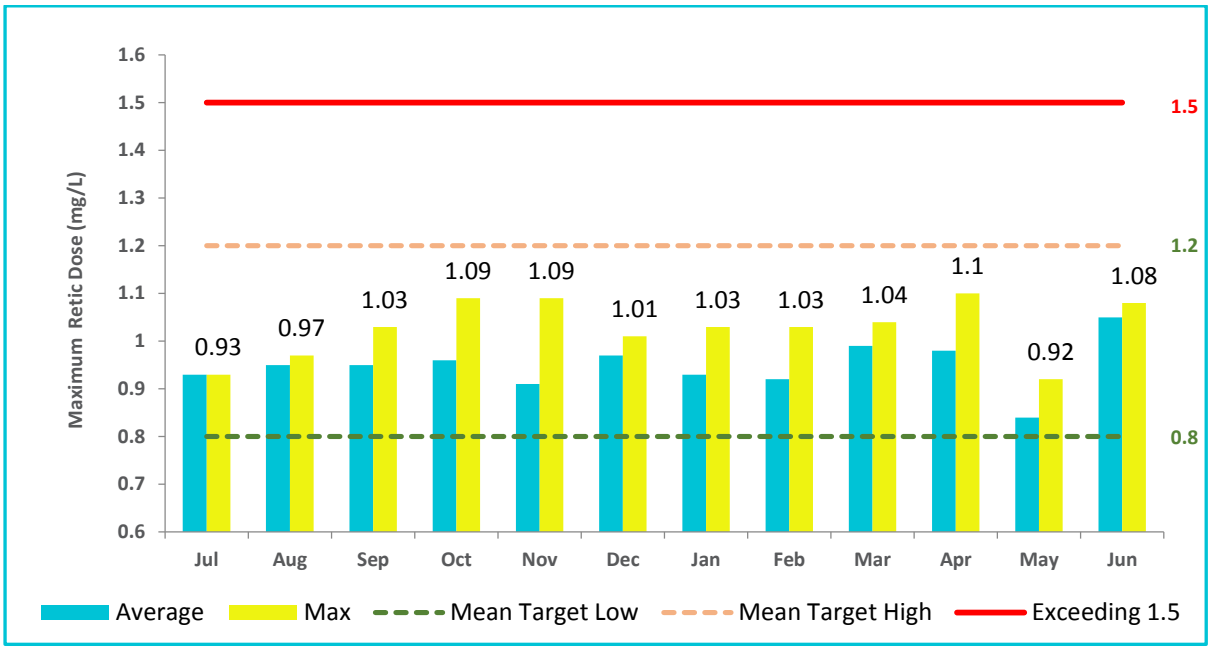


Figure 6.66.4-b Average reticulation fluoride dose by month (2016-17)

Table 6.66.4-a Metals performance 2016-17

Metals – health regulated parameters (2016–17)								
Parameter	**Limit**	**Unit**	**Samples**	**Exceedances**	**Performance %**	**Mean**	**Min.**	**Max.**
Antimony	0.003	mg/L	4	0	100	<0.0005	<0.0005	<0.0005
Arsenic	0.01	mg/L	16	0	100	0.0007	<0.0003	0.0012
Barium	2	mg/L	16	0	100	0.0019	0.0014	0.003
Cadmium	0.002	mg/L	16	0	100	<0.0001	<0.0001	<0.0001
Chromium	0.05	mg/L	16	0	100	0.0005	<0.0001	<0.001
Copper	2	mg/L	4	0	100	0.0273	0.0191	0.043
Lead	0.01	mg/L	16	0	100	0.0004	<0.0001	0.0014
Manganese	0.5	mg/L	16	0	100	0.0114	0.002	0.0377
Mercury	0.001	mg/L	16	0	100	0.00007	<0.00003	0.00028
Molybdenum	0.05	mg/L	4	0	100	0.0003	<0.0001	<0.0005
Nickel	0.02	mg/L	16	0	100	0.0003	<0.0001	0.0009
Selenium	0.01	mg/L	16	0	100	0.0009	<0.0001	<0.002

Table 6.66.4-b Disinfection by product performance 2016-17

Disinfection by products – health regulated parameters (2016–17)								
Parameter	Limit	Unit	Samples	Exceedances	Performance %	Mean	Min.	Max.
Dichloroacetic acid	100	µg/L	4	0	100	21.5	13	39
Monochloroacetic acid	150	µg/L	4	0	100	<5	<3	<5
Trichloroacetic acid	100	µg/L	4	0	100	36.25	22	50
Total trihalomethanes	250	µg/L	4	0	100	60.75	40	99

6.66.5. Analysis of overall system performance (2016-17)

Table 6.66.5-a General physical performance 2016-17

General physical parameters (2016-17)					
Parameter	Unit	Guideline Value	Mean	Min	Max
Chlorine residual	mg/L	0.1 - <0.8	0.44	0.01	1.15
Colour True	HU	15	1	<1	2
pH	Units	6.5 – 8.5	6.96	6.24	7.51
Turbidity	NTU	1	0.37	0.09	3.26

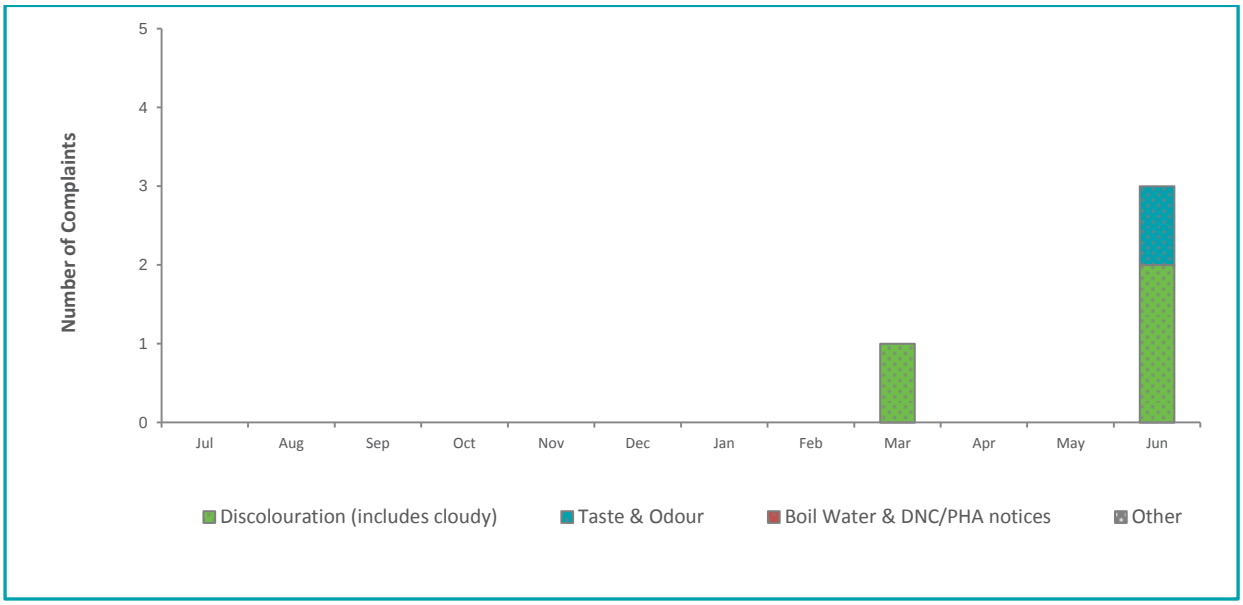


Figure 6.66.5-a Customer complaints by month and type

6.67. Wayatinah drinking water system

6.67.1. Summary of system status

Wayatinah drinking water system	
System status (as at 30 June 2017)	BWA
Total number of connections	72
Fluoride	n/a

Performance overview against health targets (2016-17)

Indicator	Outcome	Compliant	Target	Sampling Events	Non-conformances
Microbiological	98.1%	☑	98.0%	52	1
Fluoride	n/a	n/a	n/a	n/a	n/a
Metals	100.0%	☑	100.0%	4	0
DBPs	95.8%	☒	100.0%	12	2

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

Overall system performance (2016-17)

Indicator	Occurrences	Details
Customer complaints	0	
Public health warnings issued	0	
System incidents & issues	4	*E.coli* and DBP exceedances.
Catchment and water source issues	0	

Current and future planned infrastructure and operational changes

Project	Description	Progress	Est. Delivery	Est. Spend ($'000)
Wayatinah Water Supply System	Treated water supply to the community.	Tender	FY17/18	$2,731.11

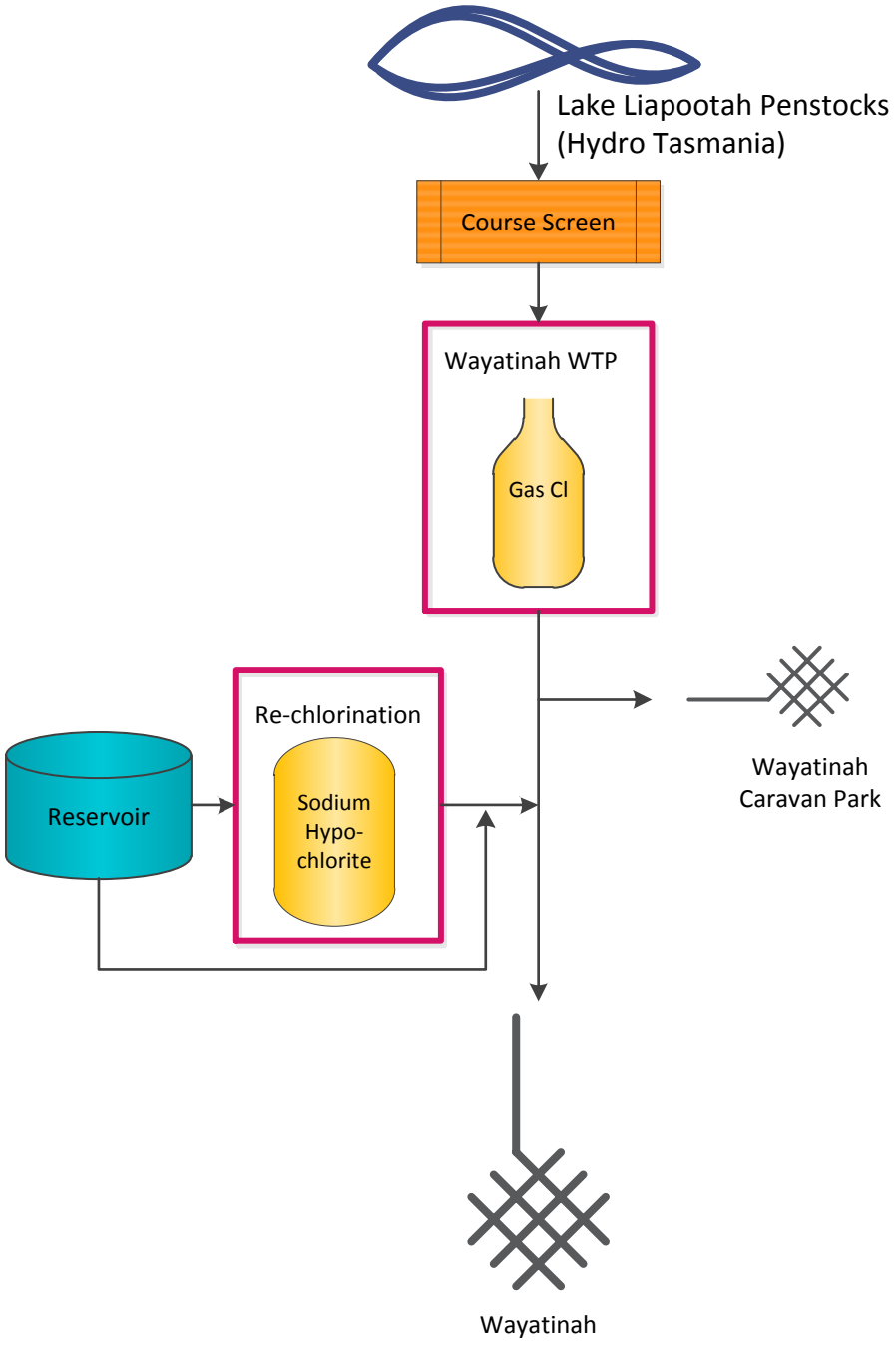


Figure 6.67.1-a Wayatinah system schematic

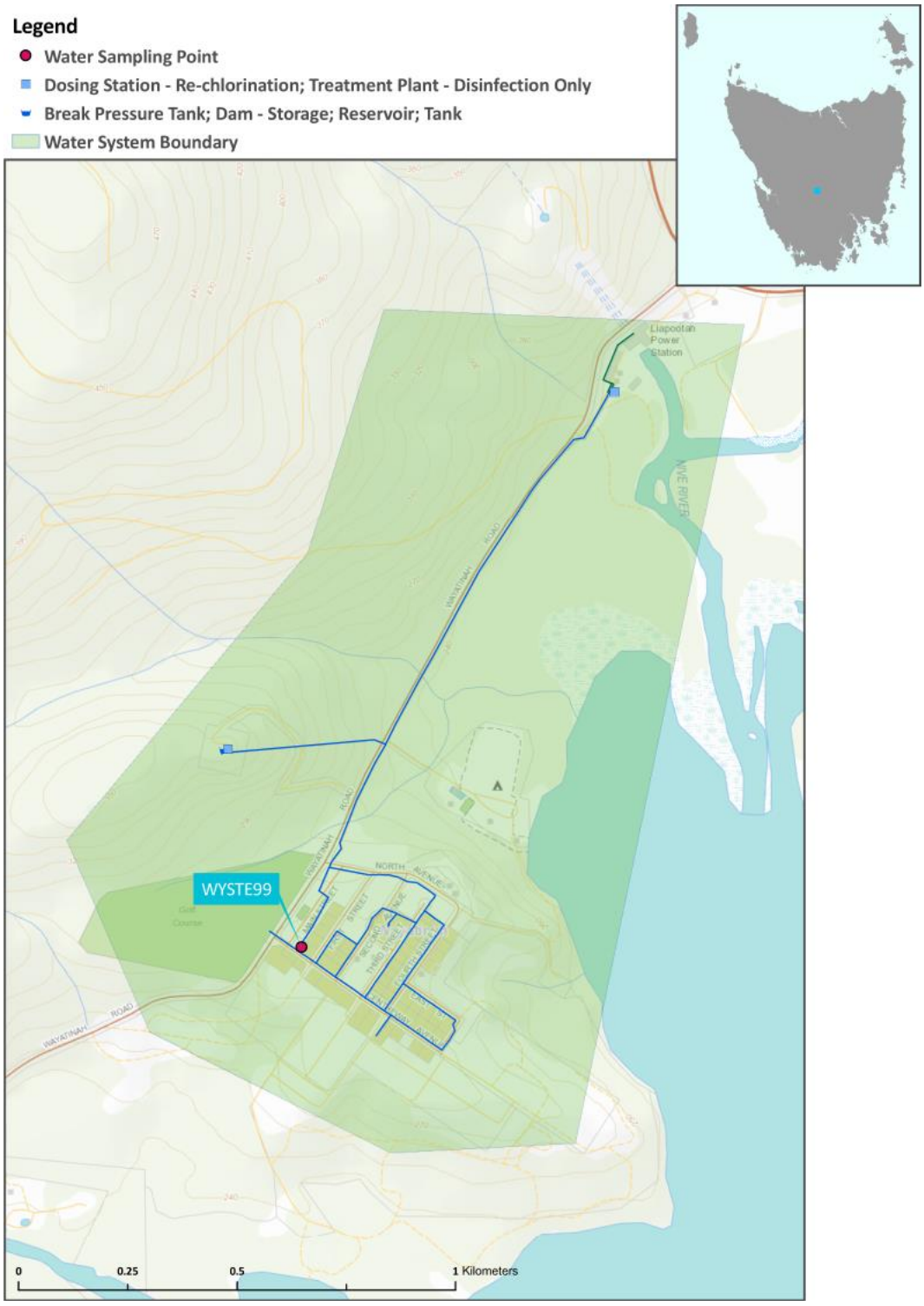


Figure 6.67.1-b Map of Wayatinah monitoring system

6.67.2. Summary of Annual Reticulation Compliance (2016–17)

Table 6.67.2-a Compliance sampling program

Planned compliance sampling program (2016-17)								
Site name	Site Code	Micros	Metals	DBP	Fluoride (Field)	Fluoride (Lab)	Chemical Profile	Process Chemicals
Wayatinah/Sample Tap	WYSTE99	W	Q	M	n/a	n/a	Q	n/a
Number Planned Samples		**52**	**4**	**12**	**0**	**0**	**4**	**0**
Number Samples Tested		**52**	**4**	**12**	**0**	**0**	**4**	**0**

6.67.3. Summary of current and historic performance (2012-17)

Table 6.67.3-a Historical health performance overview (5 year comparison)

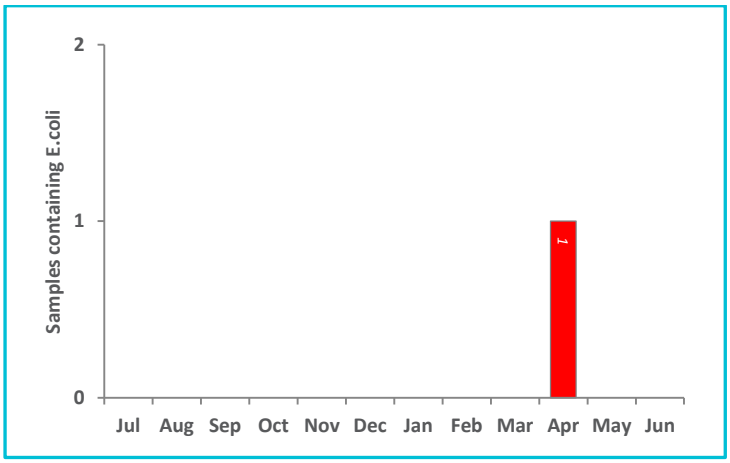
Historical health performance overview (5 year comparison)					
Indicator	2012-13	2013-14	2014-15	2015-16	2016-17
Microbiological	100.0%	99.5%	100.0%	100.0%	98.1%
Fluoride	n/a	n/a	n/a	n/a	n/a
Metals	100.0%	100.0%	100.0%	100.0%	100.0%
Disinfection by products	100.0%	100.0%	100.0%	86.0%	95.8%

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

6.67.4. Analysis of current health performance (2016-17)

Figure 6.67.4-a Microbiological non-compliances by month (2016-17)



- Poor microbiological performance can be attributed to a lack of barriers and the susceptibility to changes in quality from the Lake Liapootah Penstock.
- The risk to public health is mitigated through the communication of the Permanent BWA to customers.

Table 6.67.4-a Metals performance 2016-17

Metals – health regulated parameters (2016–17)								
Parameter	Limit	Unit	Samples	Exceedances	Performance %	Mean	Min.	Max.
Antimony	0.003	mg/L	4	0	100	<0.0005	<0.0005	<0.0005
Arsenic	0.01	mg/L	4	0	100	0.0005	<0.0003	<0.001
Barium	2	mg/L	4	0	100	0.0017	0.0016	0.002
Cadmium	0.002	mg/L	4	0	100	<0.0001	<0.0001	<0.0001
Chromium	0.05	mg/L	4	0	100	0.0004	<0.0001	<0.001
Copper	2	mg/L	4	0	100	0.0071	0.0061	0.009
Lead	0.01	mg/L	4	0	100	0.0003	0.0002	<0.0005
Manganese	0.5	mg/L	4	0	100	0.0144	0.0074	0.0218
Mercury	0.001	mg/L	4	0	100	0.00004	0.00003	0.00005

Molybdenum	0.05	mg/L	4	0	100	0.0002	<0.0001	<0.0005
Nickel	0.02	mg/L	4	0	100	0.0003	<0.0001	<0.0005
Selenium	0.01	mg/L	4	0	100	0.0006	<0.0001	<0.002

Table 6.64.4-b Disinfection by product performance 2016-17

Disinfection by products – health regulated parameters (2016–17)								
Parameter	**Limit**	**Unit**	**Samples**	**Exceedances**	**Performance %**	**Mean**	**Min.**	**Max.**
Dichloroacetic acid	100	µg/L	12	0	100	16.42	<1	57
Monochloroacetic acid	150	µg/L	12	0	100	<5	<3	<5
Trichloroacetic acid	100	µg/L	12	2	79	35.13	<1	140
Total trihalomethanes	250	µg/L	12	0	100	51.33	14	130

- DBPs were detected above the ADWG health limits in 2016 due to a lack of filtration barriers, precursors to DBPs such as organic matter are not removed. Chlorine residuals are maintained to provide disinfection.

6.67.5. Analysis of overall system performance (2016-17)

Table 6.67.5-a General physical performance 2016-17

General physical parameters (2016-17)					
Parameter	**Unit**	**Guideline Value**	**Mean**	**Min**	**Max**
Chlorine residual	mg/L	0.1 - <0.8	0.08	0.00	0.48
Colour True	HU	15	15.33	9	24
pH	Units	6.5 – 8.5	6.91	6.39	7.38
Turbidity	NTU	1	2.08	0.93	10.2

6.68. West Tamar drinking water system

6.68.1. Summary of system status

West Tamar drinking water system	
System status (as at 30 June 2017)	Potable
Total number of connections	10409
Fluoride	Fluorosilicic acid

Performance overview against health targets (2016-17)

Indicator	Outcome	Compliant	Target	Sampling Events	Non-conformances
Microbiological	100.0%	☑	98.0%	561	0
Fluoride	100.0%	☑	100.0%	104	0
Metals	100.0%	☑	100.0%	4	0
DBPs	100.0%	☑	100.0%	4	0

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

Overall system performance (2016-17)

Indicator	Occurrences	Details
Customer complaints	80	Discoloured water, taste & odour.
Public health warnings issued	0	
System incidents & issues	1	Fluoride station maintenance
Catchment and water source issues	5	Trace levels of pesticides were detected in the catchment. All results were well below the ADWG health limits.

Current and future planned infrastructure and operational changes

Project	Description	Progress	Est. Delivery	Est. Spend ($'000)
West Tamar Disinfection Project	Improved disinfection to the system (potentially UV).	Planning	FY18/19	$149.90

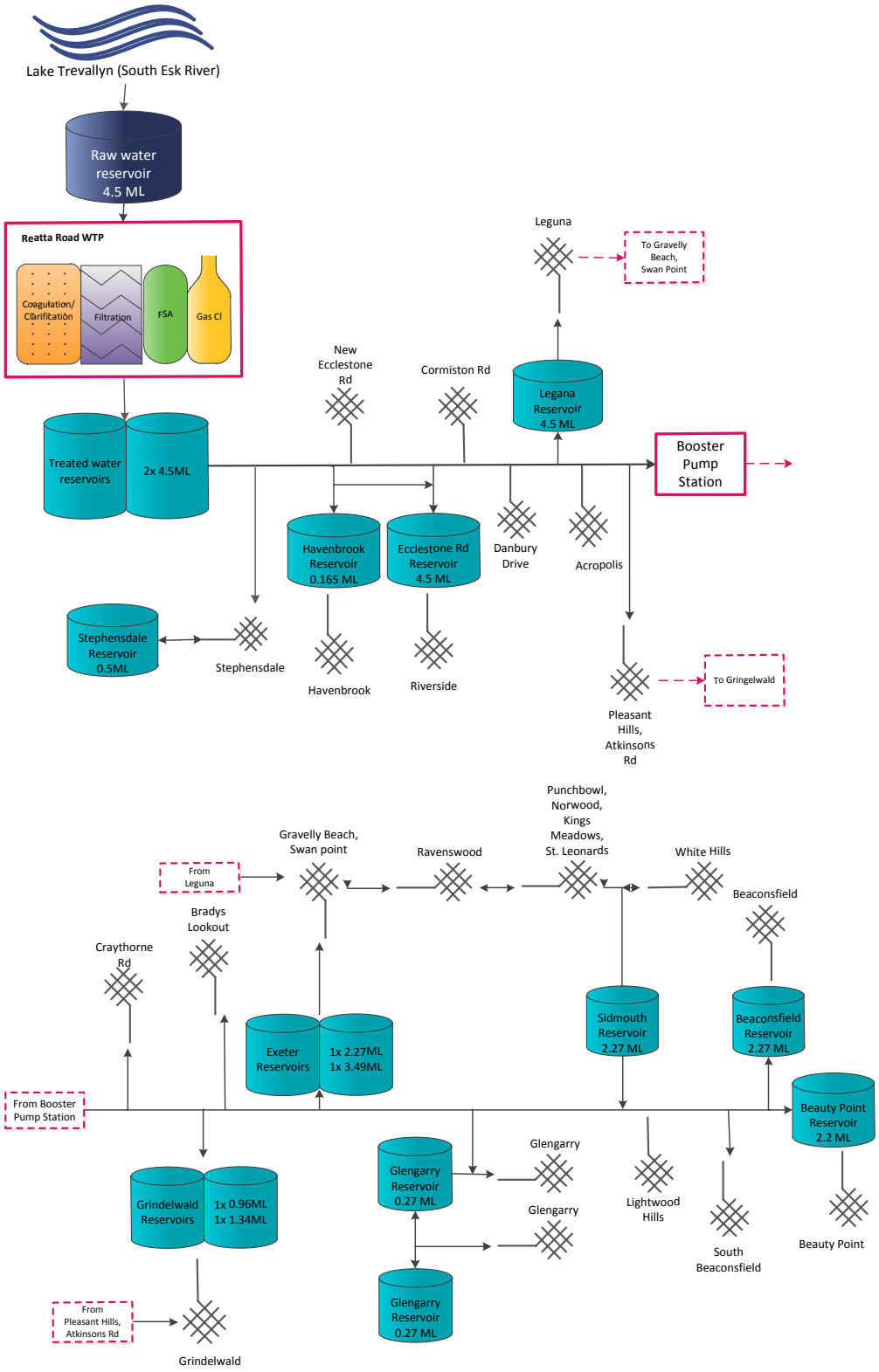


Figure 6.68.1-a West Tamar system schematic

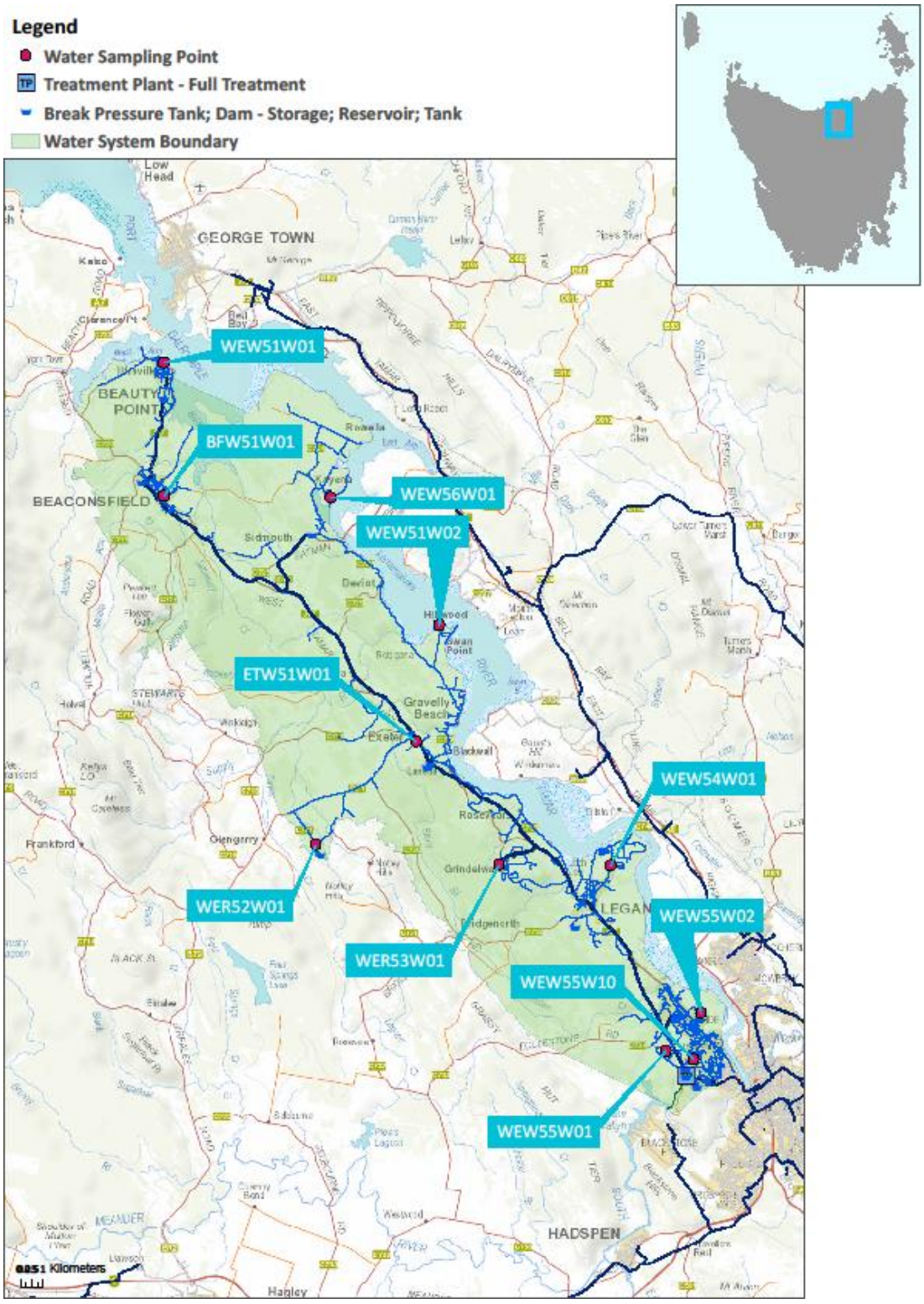


Figure 6.68.1-b Map of West Tamar monitoring system

6.68.2. Summary of Annual Reticulation Compliance (2016–17)

Table 6.68.2-a Compliance sampling program

Planned compliance sampling program (2016-17)								
Site name	Site Code	Micros	Metals	DBP	Fluoride (Field)	Fluoride (Lab)	Chemical Profile	Process Chemicals
Exeter, Biloo St	ETW51W01	W	Q	Q	W	M	Q	n/a
Stephensdale, 14 Marlou Crt	WEW55W01	W	n/a	n/a	n/a	n/a	n/a	n/a
Riverside, 32 Gray St	WEW55W10	W	n/a	n/a	n/a	n/a	n/a	n/a
Riverside, Cleghorn St	WEW55W02	W	n/a	n/a	n/a	n/a	n/a	n/a
Legana Freshwater Point Rd	WEW54W01	W	n/a	n/a	n/a	n/a	n/a	n/a
Grindlewald Res, Sample Point	WER53W01	W	n/a	n/a	n/a	n/a	n/a	n/a
Swan Pt, Park	WEW51W02	W	n/a	n/a	n/a	n/a	n/a	n/a
Glengarry Res, Reservoir	WER52W01	W	n/a	n/a	n/a	n/a	n/a	n/a
Kayena, Bonnie Beach	WEW56W01	W	n/a	n/a	n/a	n/a	n/a	n/a
Beauty Point, Esplanade Toilets	WEW51W01	W	n/a	n/a	n/a	n/a	n/a	n/a
Beaconsfield, John St Near Fire Station	BFW51W01	W	n/a	n/a	W	n/a	n/a	n/a
Number Planned Samples		**561**	**4**	**4**	**104**	**12**	**4**	**0**
Number Samples Tested		**561**	**4**	**4**	**104**	**12**	**4**	**0**

6.68.3. Summary of current and historic performance (2012-17)

Table 6.68.3-a Historical health performance overview (5 year comparison)

Historical health performance overview (5 year comparison)					
Indicator	**2012-13**	**2013-14**	**2014-15**	**2015-16**	**2016-17**
Microbiological	100.0%	99.0%	99.0%	99.7%	100.0%
Fluoride	100.0%	100.0%	100.0%	100.0%	100.0%
Metals	100.0%	100.0%	100.0%	100.0%	100.0%
Disinfection by products	100.0%	100.0%	100.0%	100.0%	100.0%

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

Table 6.68.3-b Distribution fluoride testing overview (5 year comparison)

Distribution fluoride testing overview (5 year comparison)					
Indicator	**2012-13**	**2013-14**	**2014-15**	**2015-16**	**2016-17**
Exceeding 1.5 mg/L	0	0	0	0	0
Within target range (%)	Not Recorded	Not Recorded	99.0%	79.1%	74.3%
Mean dose (mg/L)	Not Recorded	Not Recorded	1.00	0.82	0.77

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

- Reatta Road (West Tamar) fluoridation station was off intermittently (July – 10 Aug and 1 Nov – 30 Nov 2016) during the reporting period resulting in low fluoride reading in the reticulation network.

6.68.4. Analysis of current health performance (2016-17)

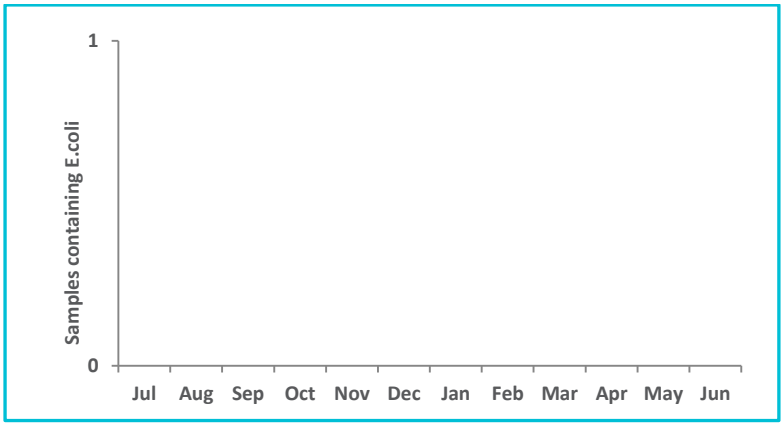


Figure 6.68.4-a Microbiological non-compliances by month (2016-17)

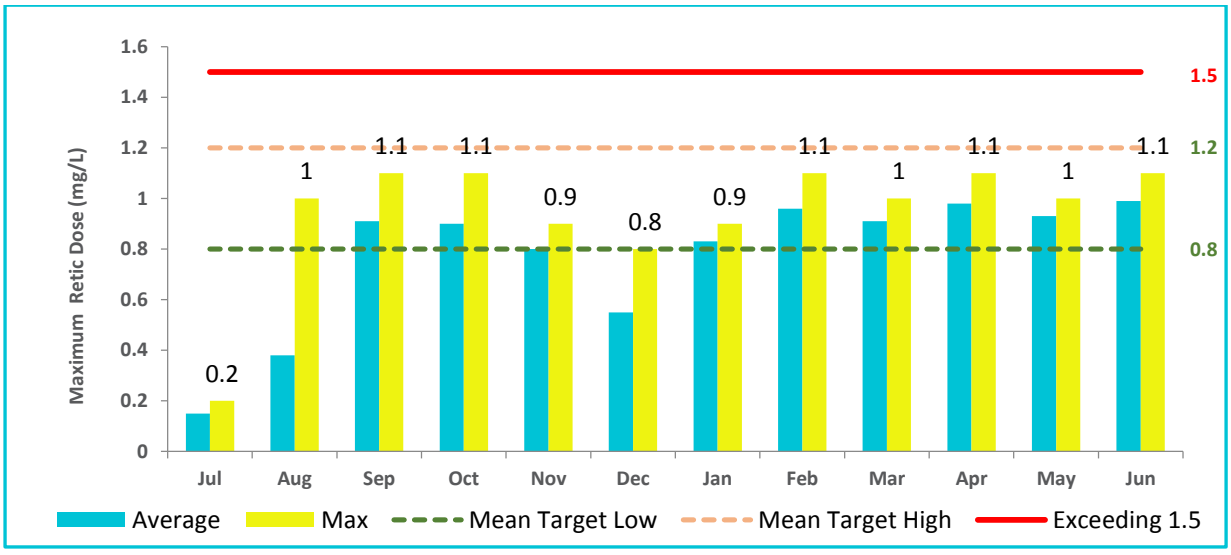


Figure 6.68.4-b Average reticulation fluoride dose by month (2016-17)

Table 6.68.4-a Metals performance 2016-17

Metals – health regulated parameters (2016–17)								
Parameter	Limit	Unit	Samples	Exceedances	Performance %	Mean	Min.	Max.
Antimony	0.003	mg/L	4	0	100	<0.0005	<0.0005	<0.0005
Arsenic	0.01	mg/L	4	0	100	0.0005	<0.0003	<0.001
Barium	2	mg/L	4	0	100	0.0114	0.0067	0.015
Cadmium	0.002	mg/L	4	0	100	0.0001	<0.0001	0.0002
Chromium	0.05	mg/L	4	0	100	0.0003	<0.0001	<0.001
Copper	2	mg/L	4	0	100	0.0007	0.0002	0.0012
Lead	0.01	mg/L	4	0	100	0.0002	<0.0001	<0.0005
Manganese	0.5	mg/L	4	0	100	0.004	0.0012	0.0093
Mercury	0.001	mg/L	4	0	100	0.00011	<0.00005	0.00016
Molybdenum	0.05	mg/L	4	0	100	0.0002	<0.0001	<0.0005
Nickel	0.02	mg/L	4	0	100	0.003	<0.0001	<0.0005
Selenium	0.01	mg/L	4	0	100	0.0007	<0.0001	<0.002

Table 6.68.4-b Disinfection by product performance 2016-17

Disinfection by products – health regulated parameters (2016–17)								
Parameter	Limit	Unit	Samples	Exceedances	Performance %	Mean	Min.	Max.
Dichloroacetic acid	100	µg/L	4	0	100	8.75	4	14
Monochloroacetic acid	150	µg/L	4	0	100	<5	<3	<5
Trichloroacetic acid	100	µg/L	4	0	100	13	3	20
Total trihalomethanes	250	µg/L	4	0	100	49.5	18	83

6.68.5. Analysis of overall system performance (2016-17)

Table 6.68.5-a General physical performance 2016-17

General physical parameters (2016-17)					
Parameter	Unit	Guideline Value	Mean	Min	Max
Chlorine residual	mg/L	0.1 - <0.8	0.30	0.00	1.32
Colour True	HU	15	<1	<1	<1
pH	Units	6.5 – 8.5	7.15	6.54	8.18
Turbidity	NTU	1	0.28	0.10	6.49

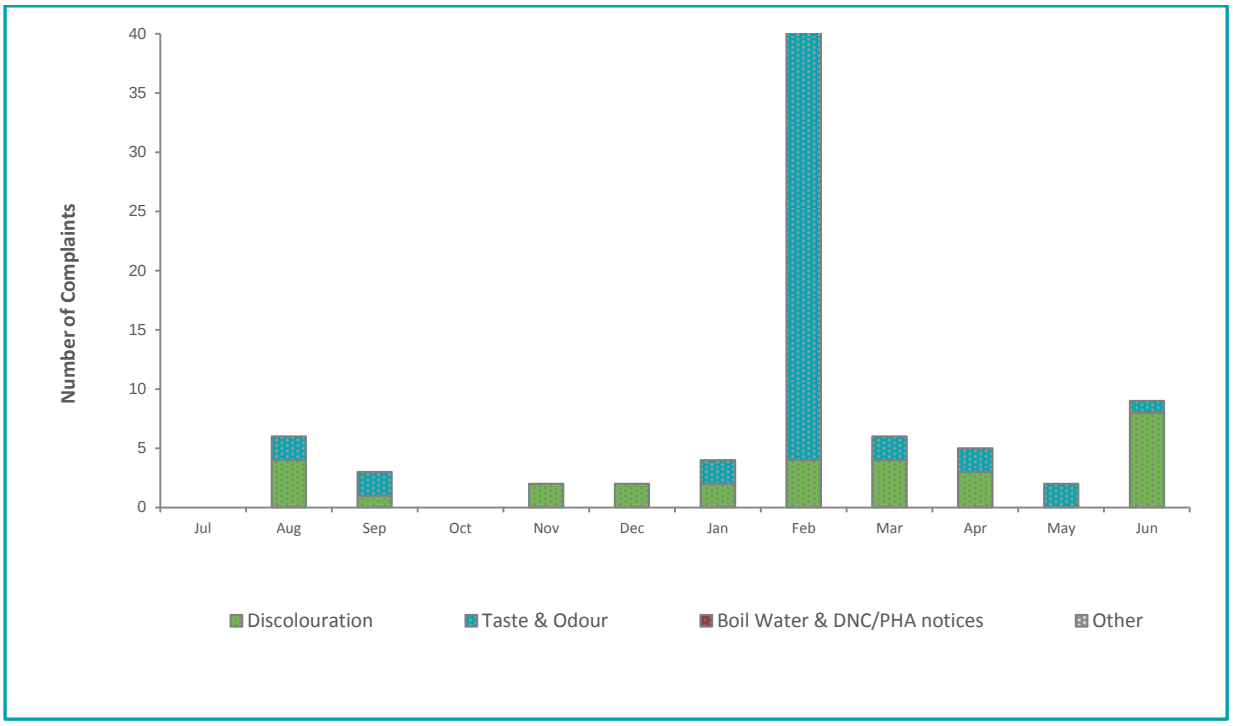


Figure 6.68.5-a Customer complaints by month and type

6.69. Westbury drinking water system

6.69.1. Summary of system status

Westbury drinking water system	
System status (as at 30 June 2017)	Potable
Total number of connections	1180
Fluoride	Sodium Fluoride

Performance overview against health targets (2016-17)

Indicator	Outcome	Compliant	Target	Sampling Events	Non-conformances
Microbiological	100.0%	☑	98.0%	104	0
Fluoride	100.0%	☑	100.0%	104	0
Metals	100.0%	☑	100.0%	4	0
DBPs	100.0%	☑	100.0%	4	0

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

Overall system performance (2016-17)

Indicator	Occurrences	Details
Customer complaints	9	Discoloured water, taste & odour.
Public health warnings issued	0	
System incidents & issues	0	
Catchment and water source issues	1	Trace levels of pesticides were collected in the catchment. All results were well below the ADWG health limits.

Current and future planned infrastructure and operational changes

Project	Description	Progress	Est. Delivery	Est. Spend
n/a	n/a	n/a	n/a	n/a

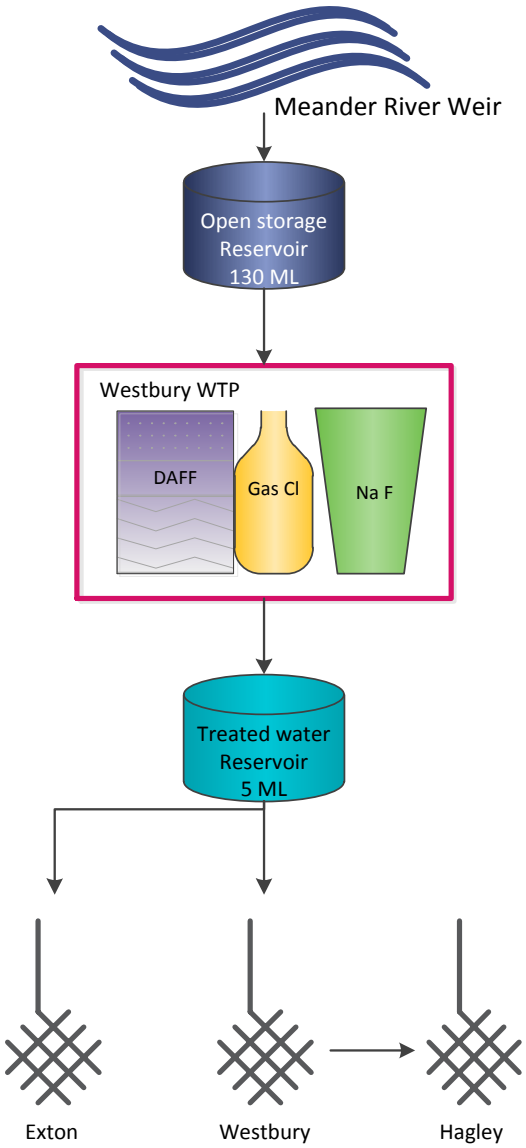


Figure 6.69.1-a Westbury system schematic

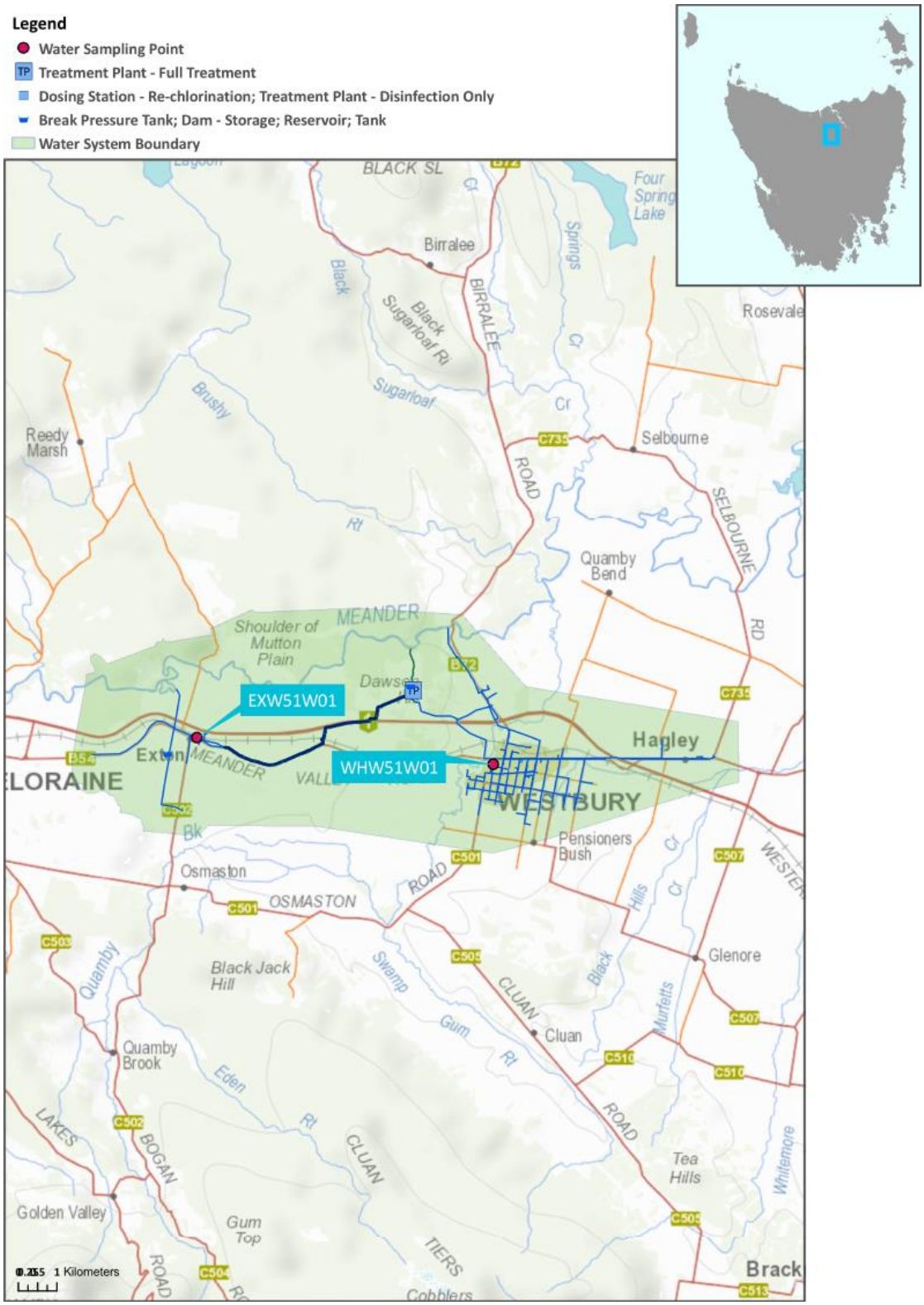


Figure 6.69.1-b Map of Westbury monitoring system

6.69.2. Summary of Annual Reticulation Compliance (2016–17)

Table 6.69.2-a Compliance sampling program

Planned compliance sampling program (2016-17)								
Site name	Site Code	Micros	Metals	DBP	Fluoride (Field)	Fluoride (Lab)	Chemical Profile	Process Chemicals
Westbury/Exton, Main Road	EXW51W01	W	n/a	n/a	W	n/a	n/a	n/a
Westbury/Village Green	WHW51W01	W	Q	Q	W	M	Q	n/a
Number Planned Samples		**104**	**4**	**4**	**104**	**12**	**4**	**0**
Number Samples Tested		**104**	**4**	**4**	**104**	**12**	**4**	**0**

6.69.3. Summary of current and historic performance (2012-17)

Table 6.69.3-a Historical health performance overview (5 year comparison)

Historical health performance overview (5 year comparison)					
Indicator	2012-13	2013-14	2014-15	2015-16	2016-17
Microbiological	100.0%	98.0%	100.0%	100.0%	100.0%
Fluoride	100.0%	100.0%	100.0%	100.0%	100.0%
Metals	100.0%	100.0%	100.0%	100.0%	100.0%
Disinfection by products	100.0%	100.0%	100.0%	100.0%	100.0%

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

Table 6.69.3-b Distribution fluoride testing overview (5 year comparison)

Distribution fluoride testing overview (5 year comparison)					
Indicator	**2012-13**	**2013-14**	**2014-15**	**2015-16**	**2016-17**
Exceeding 1.5 mg/L	0	0	0	0	0
Within target range (%)	Not Recorded	Offline	86.0%	84.9%	96.2%
Mean dose (mg/L)	Not Recorded	Offline	0.88	0.82	0.93

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

6.69.4. Analysis of current health performance (2016-17)

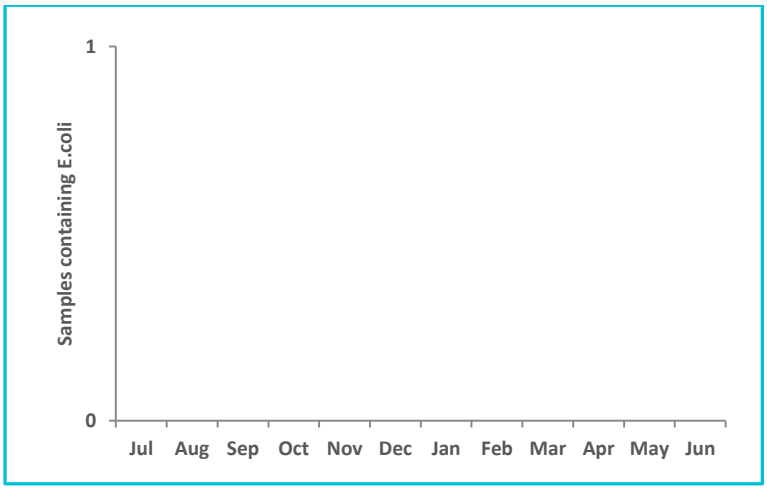


Figure 6.69.4-a Microbiological non-compliances by month (2016-17)

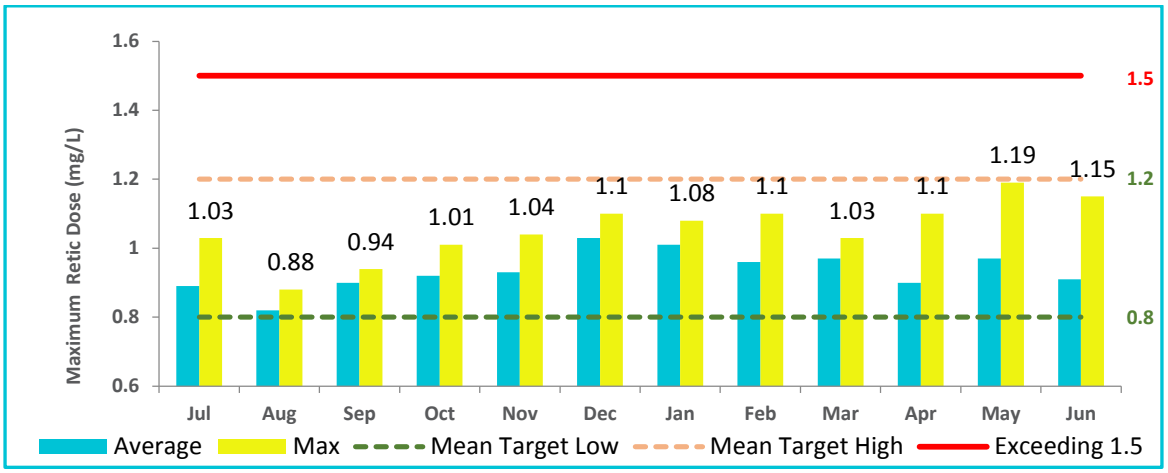


Figure 6.69.4-b Average reticulation fluoride dose by month (2016-17)

Table 6.69.4-a Metals performance 2016-17

Metals – health regulated parameters (2016–17)								
Parameter	**Limit**	**Unit**	**Samples**	**Exceedances**	**Performance %**	**Mean**	**Min.**	**Max.**
Antimony	0.003	mg/L	4	0	100	<0.0005	<0.0005	<0.0005
Arsenic	0.01	mg/L	4	0	100	0.0005	<0.0003	<0.001
Barium	2	mg/L	4	0	100	0.0078	0.0055	0.0095
Cadmium	0.002	mg/L	4	0	100	<0.0001	<0.0001	<0.0001
Chromium	0.05	mg/L	4	0	100	0.0003	<0.0001	<0.001
Copper	2	mg/L	4	0	100	0.0007	0.0002	<0.001
Lead	0.01	mg/L	4	0	100	0.0002	<0.0001	<0.0005
Manganese	0.5	mg/L	4	0	100	0.001	0.001	0.0015
Mercury	0.001	mg/L	4	0	100	0.00005	0.00004	0.00007
Molybdenum	0.05	mg/L	4	0	100	0.0002	<0.0001	<0.0005
Nickel	0.02	mg/L	4	0	100	0.0002	<0.0001	<0.0005
Selenium	0.01	mg/L	4	0	100	0.0006	<0.0001	<0.002

Table 6.69.4-b Disinfection by product performance 2016-17

Disinfection by products – health regulated parameters (2016–17)								
Parameter	Limit	Unit	Samples	Exceedances	Performance %	Mean	Min.	Max.
Dichloroacetic acid	100	µg/L	4	0	100	11.5	7	14
Monochloroacetic acid	150	µg/L	4	0	100	<5	<3	<5
Trichloroacetic acid	100	µg/L	4	0	100	11	8	14
Total trihalomethanes	250	µg/L	4	0	100	27.5	21	36

6.69.5. Analysis of overall system performance (2016-17)

Table 6.69.5-a General physical performance 2016-17

General physical parameters (2016-17)					
Parameter	Unit	Guideline Value	Mean	Min	Max
Chlorine residual	mg/L	0.1 - <0.8	0.80	0.04	1.16
Colour True	HU	15	<1	<1	<1
pH	Units	6.5 – 8.5	7.62	6.81	8.69
Turbidity	NTU	1	0.20	0.05	0.87

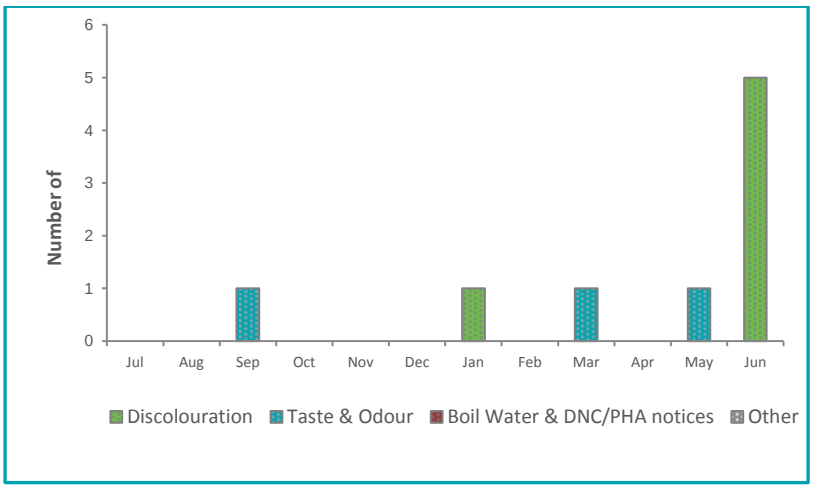


Figure 6.69.5-a Customer complaints by month and type

6.70. Whitemark drinking water system

6.70.1. Summary of system status

Whitemark drinking water system	
System status (as at 30 June 2017)	POTABLE
Total number of connections	213
Fluoride	n/a

Performance overview against health targets (2016-17)

Indicator	Outcome	Compliant	Target	Sampling Events	Non-conformances
Microbiological	99.1%	☑	98.0%	109	1
Fluoride	n/a	n/a	n/a	n/a	n/a
Metals	100.0%	☑	100.0%	10	0
DBPs	100.0%	☑	100.0%	21	0

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

Overall system performance (2016-17)

Indicator	Occurrences	Details
Customer complaints	0	
Public health warnings issued	0	
System incidents & issues	1	E. coli exceedance.
Catchment and water source issues	0	

Current and future planned infrastructure and operational changes

Project	Description	Progress	Est. Delivery	Est. Spend ($'000)
Flinders Island water supply project	Treated water supply to the communities of Whitemark	Complete	FY17/18	$453.50

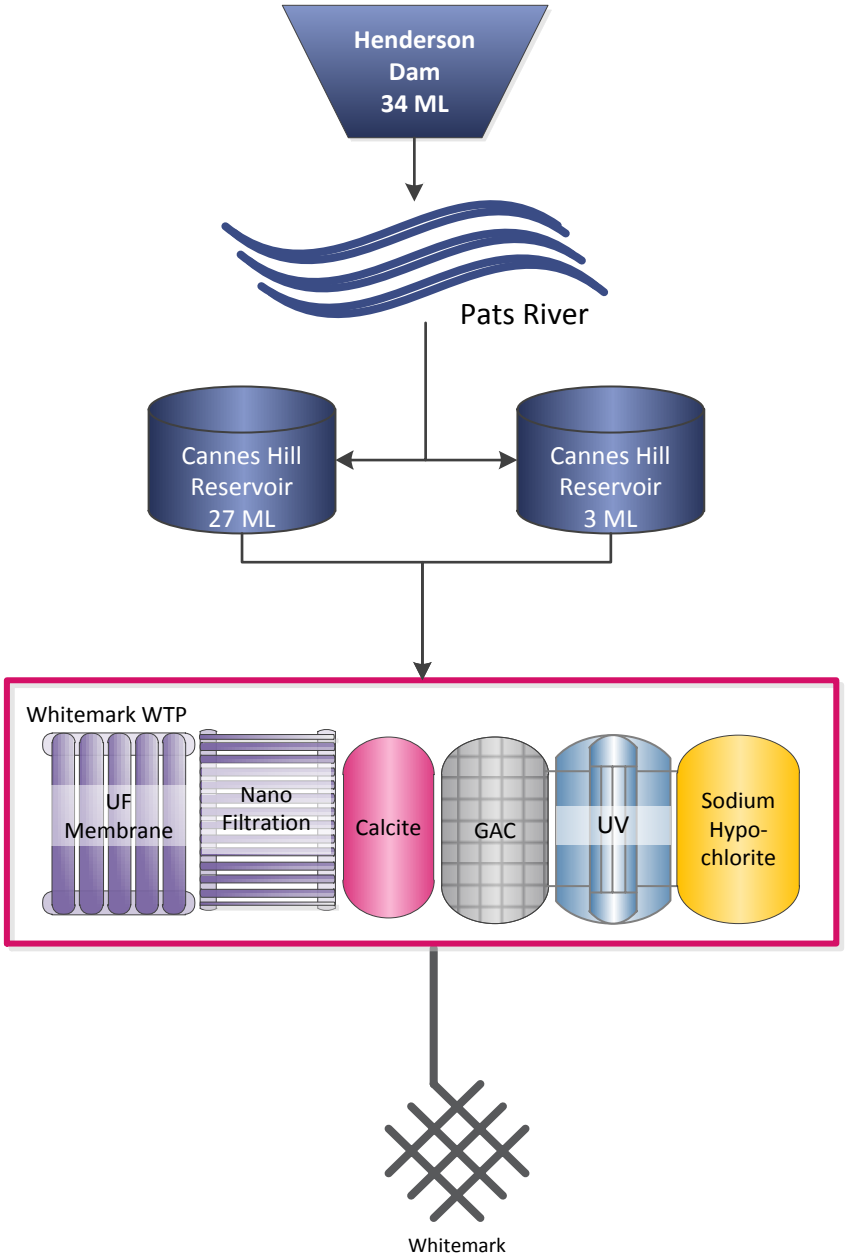


Figure 6.70.1-a Whitemark system schematic

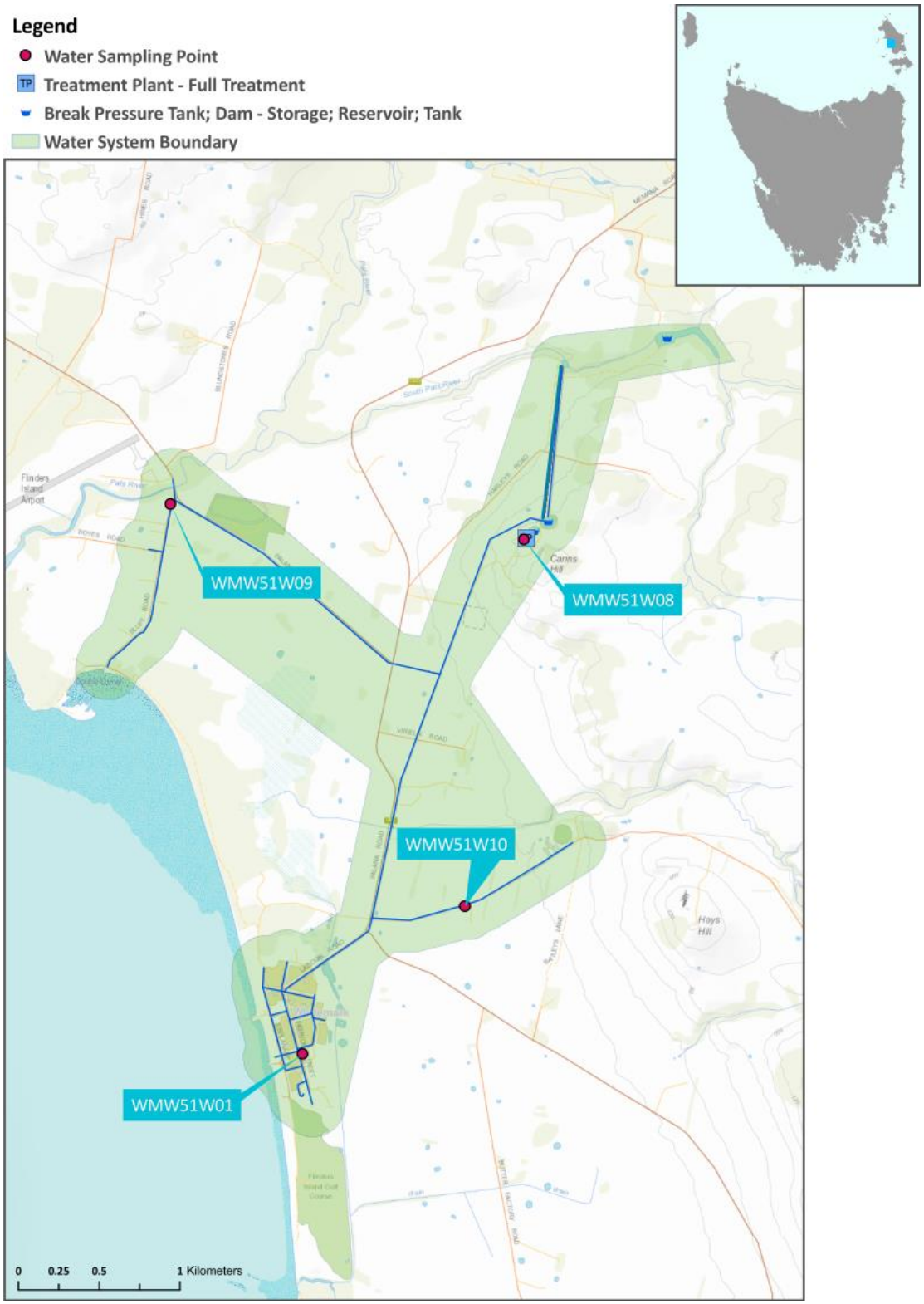


Figure 6.70.1-b Map of Whitemark monitoring system

6.70.2. Summary of Annual Reticulation Compliance (2016–17)

Table 6.70.2-a Compliance sampling program

Planned compliance sampling program (2016-17)								
Site name	Site Code	Micros	Metals	DBP	Fluoride (Field)	Fluoride (Lab)	Chemical Profile	Process Chemicals
Whitemark/Council Depot	WMW51W01	M	Q	n/a	n/a	n/a	Q	n/a
Whitemark/Council Depot^	WMW51W01	W	M	Q	n/a	n/a	Q	n/a
Whitemark/Crn Palana Rd & Bluff Rd^	WMW51W09	W	Q	Q	n/a	n/a	Q	n/a
Whitemark/CWS^	WMW51W08	W	n/a	n/a	n/a	n/a	n/a	n/a
Whitemark/62 Thule Rd^	WMW51W10	W	n/a	n/a	n/a	n/a	n/a	n/a
Whitemark/Council Depot#	WMW51W01	W	M	Q	n/a	n/a	Q	n/a
Whitemark/Crn Palana Rd & Bluff Rd#	WMW51W09	W	Q	Q	n/a	n/a	Q	n/a
Number Planned Samples		**109**	**11**	**6**	**0**	**0**	**6**	**0**
Number Samples Tested		**109**	**10***	**6**	**0**	**0**	**6**	**0**

- ^New program post BWA on 30/11/16-24/4/2017
- # New program post verification program from 24/4/2017
- * WMW51W09: Whitemark / Crn Palana Rd & Bluff Rd- no metals for quarterly project in June 2017

6.70.3. Summary of current and historic performance (2012-17)

Table 6.70.3-a Historical health performance overview (5 year comparison)

Historical health performance overview (5 year comparison)					
Indicator	**2012-13**	**2013-14**	**2014-15**	**2015-16**	**2016-17**
Microbiological	38.0%	23.0%	37.8%	50.0%	99.1%
Fluoride	n/a	n/a	n/a	n/a	n/a
Metals	53.0%	100.0%	100.0%	100.0%	100.0%
Disinfection by products	n/a	n/a	100.0%	n/a	100.0%

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

6.70.4. Analysis of current health performance (2016-17)

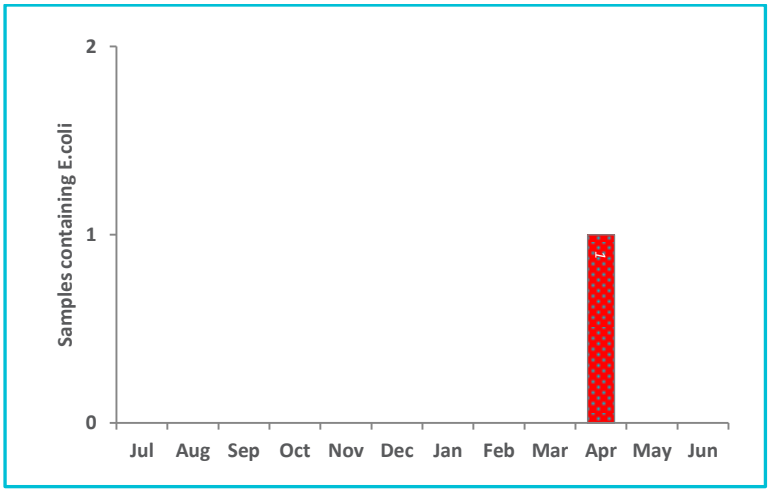


Figure 6.70.4-a Microbiological non-compliances by month (2016-17)

- E.coli detection of 2 MPN/100mL on 10/04/2017 at WMW51W08 Whitemark / CWS
- Site was closely examined and resampled. No indication of compromised water quality. The inappropriate sampling point was relocated.
- Resample taken on 12/04/2017 and results all clear

Table 6.70.4-a Metals performance 2016-17

Metals – health regulated parameters (2016–17)								
Parameter	Limit	Unit	Samples	Exceedances	Performance %	Mean	Min.	Max.
Antimony	0.003	mg/L	10	0	100	<0.0005	<0.0005	<0.0005
Arsenic	0.01	mg/L	10	0	100	0.0005	<0.0003	<0.001
Barium	2	mg/L	10	0	100	0.0029	0.0019	0.0048
Cadmium	0.002	mg/L	10	0	100	0.0001	<0.0001	0.0001
Chromium	0.05	mg/L	10	0	100	0.0002	<0.0001	<0.001
Copper	2	mg/L	10	0	100	0.0003	<0.0001	<0.001
Lead	0.01	mg/L	10	0	100	0.0003	<0.0001	0.0008
Manganese	0.5	mg/L	10	0	100	0.0004	<0.0001	<0.001
Mercury	0.001	mg/L	10	0	100	0.00007	<0.00003	0.00017
Molybdenum	0.05	mg/L	10	0	100	0.0001	<0.0001	<0.0005
Nickel	0.02	mg/L	10	0	100	0.0001	<0.0001	<0.0005
Selenium	0.01	mg/L	10	0	100	0.0003	<0.0001	<0.002

Table 6.70.4-b Disinfection by product performance 2016-17

Disinfection by products – health regulated parameters (2016–17)								
Parameter	Limit	Unit	Samples	Exceedances	Performance %	Mean	Min.	Max.
Dichloroacetic acid	100	µg/L	21	0	100	0.74	0.5	2
Monochloroacetic acid	150	µg/L	21	0	100	2.64	2.5	3
Trichloroacetic acid	100	µg/L	21	0	100	0.86	0.5	1
Total trihalomethanes	250	µg/L	21	0	100	14.78	4	28

6.70.5. Analysis of overall system performance (2016-17)

Table 6.70.5-a General physical performance 2016-17

General physical parameters (2016-17)					
Parameter	**Unit**	**Guideline Value**	**Mean**	**Min**	**Max**
Chlorine residual	mg/L	0.1 - <0.8	0.53	0.0	1.5
Colour True	HU	15	<1	<1	<1
pH	Units	6.5 – 8.5	7.39	5.32	9.37
Turbidity	NTU	1	0.51	0.08	13.3

6.71. Winnaleah drinking water system

6.71.1. Summary of system status

Winnaleah drinking water system	
System status (as at 30 June 2017)	DNC
Total number of connections	106
Fluoride	n/a

Performance overview against health targets (2016-17)

Indicator	Outcome	Compliant	Target	Sampling Events	Non-conformances
Microbiological	66.7%	☒	98.0%	12	4
Fluoride	n/a	n/a	n/a	n/a	n/a
Metals	100.0%	☑	100.0%	4	0
DBPs	100.0%	☑	n/a	4	0

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

Overall system performance (2016-17)

Indicator	Occurrences	Details
Customer complaints	0	
Public health warnings issued	0	DNC since 26 November 2014
System incidents & issues	4	*E. coli* exceedances.
Catchment and water source issues	0	

Current and future planned infrastructure and operational changes

Project	Description	Progress	Est. Delivery	Est. Spend ($'000)
Ringarooma Valley Scheme	New WTP at Ringarooma to supply the communities of Ringarooma, Legerwood, Branxholm, Derby and Winnaleah.	Commissioning	FY17/18	$124.82

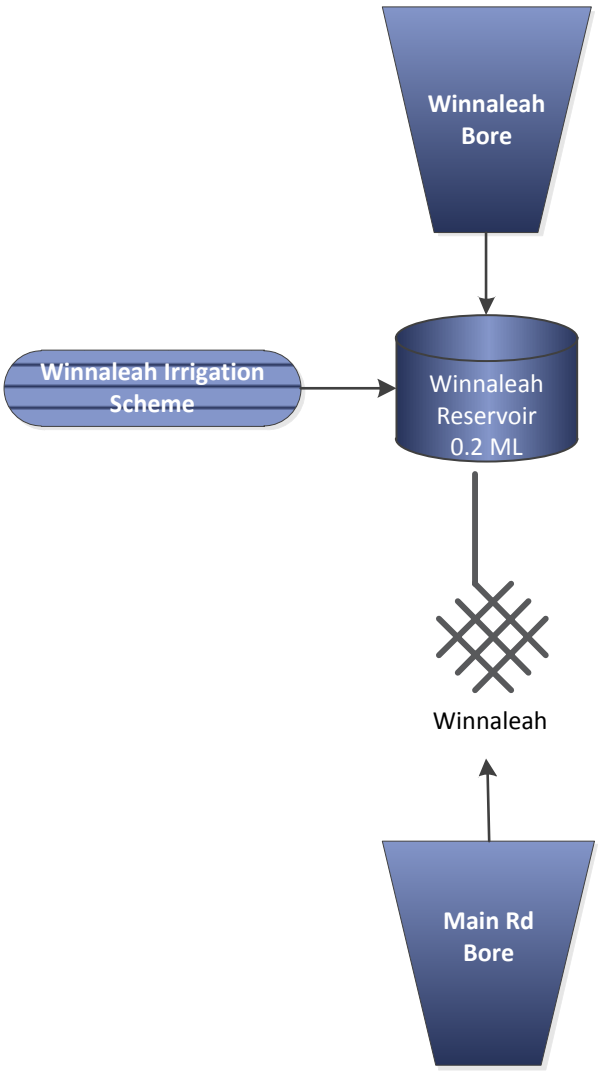


Figure 6.71.1-a Winnaleah system schematic

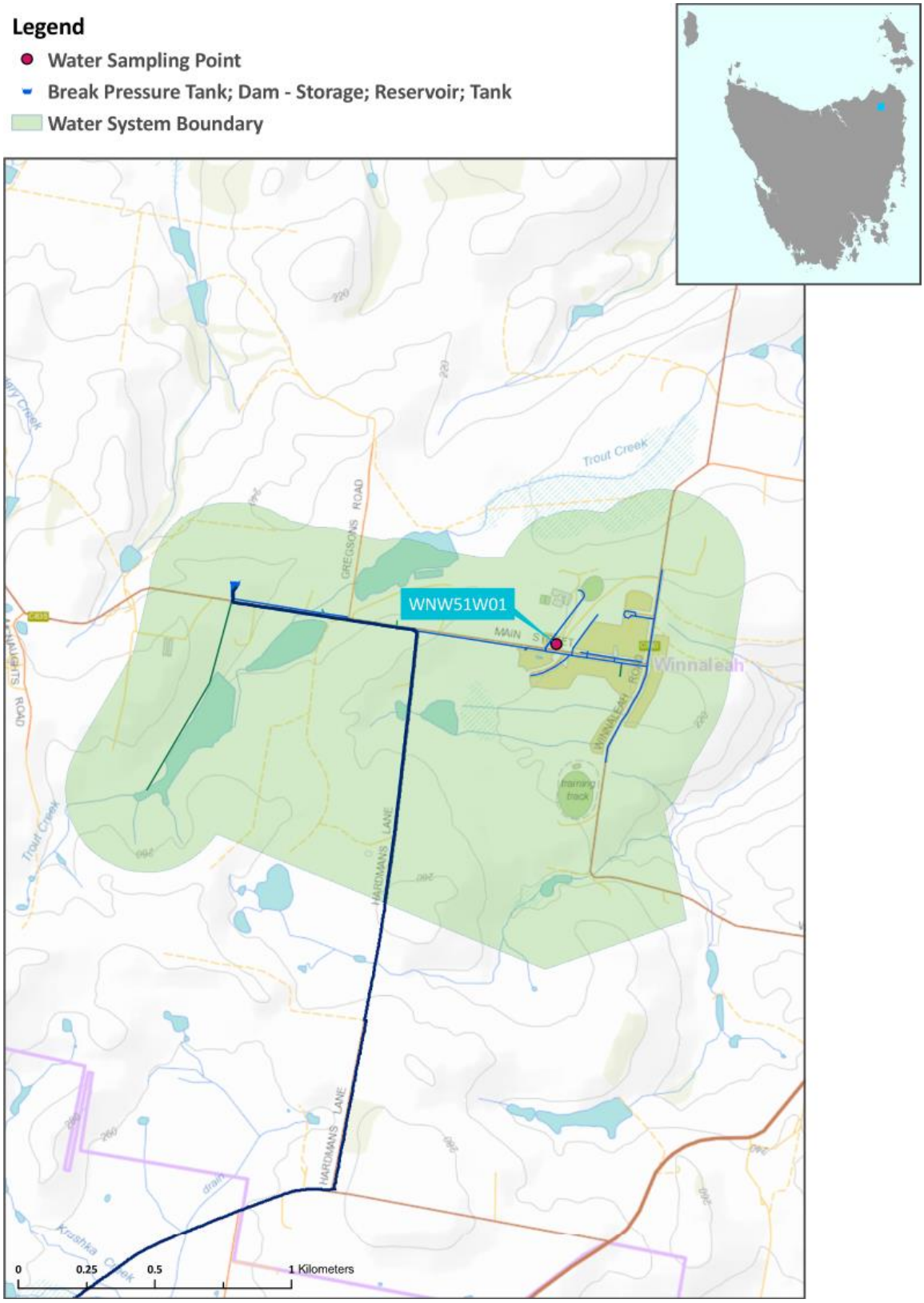


Figure 6.71.1-b Map of Winnaleah monitoring system

6.71.2. Summary of Annual Reticulation Compliance (2016–17)

Table 6.71.2-a Compliance sampling program

Planned compliance sampling program (2016-17)								
Site name	Site Code	Micros	Metals	DBP	Fluoride (Field)	Fluoride (Lab)	Chemical Profile	Process Chemicals
Winnaleah/School	WNW51W01	M	Q	Q	n/a	n/a	Q	n/a
Number Planned Samples		**12**	**4**	**4**	**0**	**0**	**4**	**0**
Number Samples Tested		**12**	**4**	**4**	**0**	**0**	**4**	**0**

6.71.3. Summary of current and historic performance (2012-17)

Table 6.71.3-a Historical health performance overview (5 year comparison)

Historical health performance overview (5 year comparison)					
Indicator	2012-13	2013-14	2014-15	2015-16	2016-17
Microbiological	66.0%	45.0%	61.0%	50.0%	66.7%
Fluoride	n/a	n/a	n/a	n/a	n/a
Metals	100.0%	97.0%	99.0%	100.0%	100.0%
Disinfection by products	n/a	n/a	n/a	n/a	100.0%

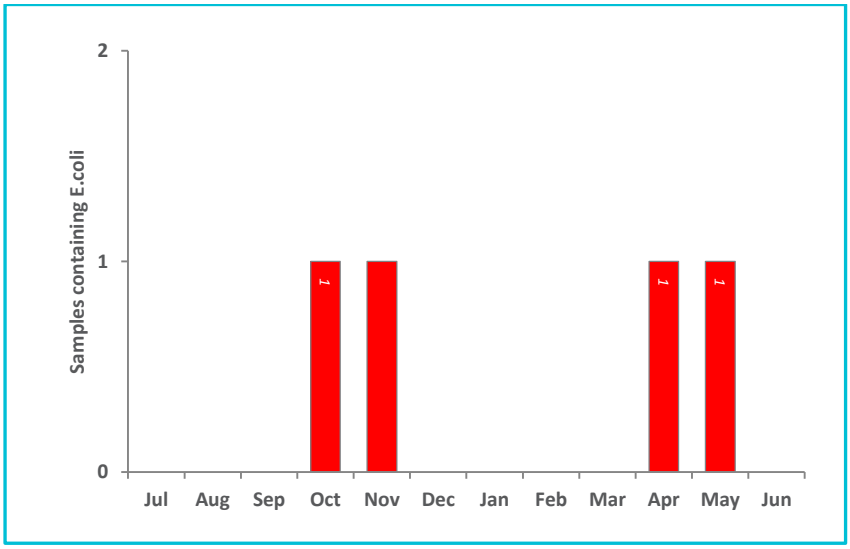
on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

- Risk to public health is mitigated through a BWA.

6.71.4. Analysis of current health performance (2016-17)

Figure 6.71.4-a Microbiological non-compliances by month (2016-17)



- Poor microbiological performance can be attributed to a lack of barriers and the susceptibility to changes in quality from the Winnaleah Bore.
- The risk to public health is mitigated through the communication of the Permanent PHA to customers.

Table 6.71.4-a Metals performance 2016-17

Metals – health regulated parameters (2016–17)								
Parameter	**Limit**	**Unit**	**Samples**	**Exceedances**	**Performance %**	**Mean**	**Min.**	**Max.**
Antimony	0.003	mg/L	4	0	100	<0.0005	<0.0005	<0.0005
Arsenic	0.01	mg/L	4	0	100	0.0005	<0.0003	<0.001
Barium	2	mg/L	4	0	100	0.0146	0.0077	0.0175
Cadmium	0.002	mg/L	4	0	100	<0.0001	<0.0001	<0.0001
Chromium	0.05	mg/L	4	0	100	0.0003	<0.0001	<0.001
Copper	2	mg/L	4	0	100	0.03	0.0118	0.0414
Lead	0.01	mg/L	4	0	100	0.0019	0.0003	0.0027
Manganese	0.5	mg/L	4	0	100	0.0092	0.0078	0.0101
Mercury	0.001	mg/L	4	0	100	0.00004	<0.00003	<0.00005
Molybdenum	0.05	mg/L	4	0	100	0.0002	<0.0001	<0.0005

Nickel	0.02	mg/L	4	0	100	0.0037	0.0016	0.0045
Selenium	0.01	mg/L	4	0	100	0.0006	<0.0001	<0.002

Table 6.71.4-b Disinfection by product performance 2016-17

Disinfection by products – health regulated parameters (2016–17)								
Parameter	**Limit**	**Unit**	**Samples**	**Exceedances**	**Performance %**	**Mean**	**Min.**	**Max.**
Dichloroacetic acid	100	µg/L	4	0	100	<1	<1	<1
Monochloroacetic acid	150	µg/L	4	0	100	<5	<3	<5
Trichloroacetic acid	100	µg/L	4	0	100	2.5	<1	8
Total trihalomethanes	250	µg/L	4	0	100	8.19	<1.5	28

6.71.5. Analysis of overall system performance (2016-17)

Table 6.71.5-a General physical performance 2016-17

General physical parameters (2016-17)					
Parameter	**Unit**	**Guideline Value**	**Mean**	**Min**	**Max**
Chlorine residual	mg/L	0.1 - <0.8	0.17	0.0	0.53
Colour True	HU	15	<1	<1	<1
pH	Units	6.5 – 8.5	6.68	5.10	7.88
Turbidity	NTU	1	1.48	0.29	9.99

6.72. Zeehan drinking water system

6.72.1. Summary of system status

Zeehan drinking water system	
System status (as at 30 June 2017)	Potable
Total number of connections	750
Fluoride	Sodium Fluoride

Performance overview against health targets (2016-17)

Indicator	Outcome	Compliant	Target	Sampling Events	Non-conformances
Microbiological	100.0%	☑	98.0%	152	0
Fluoride	100.0%	☑	100.0%	104	0
Metals	100.0%	☑	100.0%	15	0
DBPs	100.0%	☑	100.0%	4	0

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

Overall system performance (2016-17)

Indicator	Occurrences	Details
Customer complaints	1	Discoloured water.
Public health warnings issued	0	
System incidents & issues	0	
Catchment and water source issues	0	

Current and future planned infrastructure and operational changes

Project	Description	Progress	Est. Delivery	Est. Spend
n/a	n/a	n/a	n/a	n/a

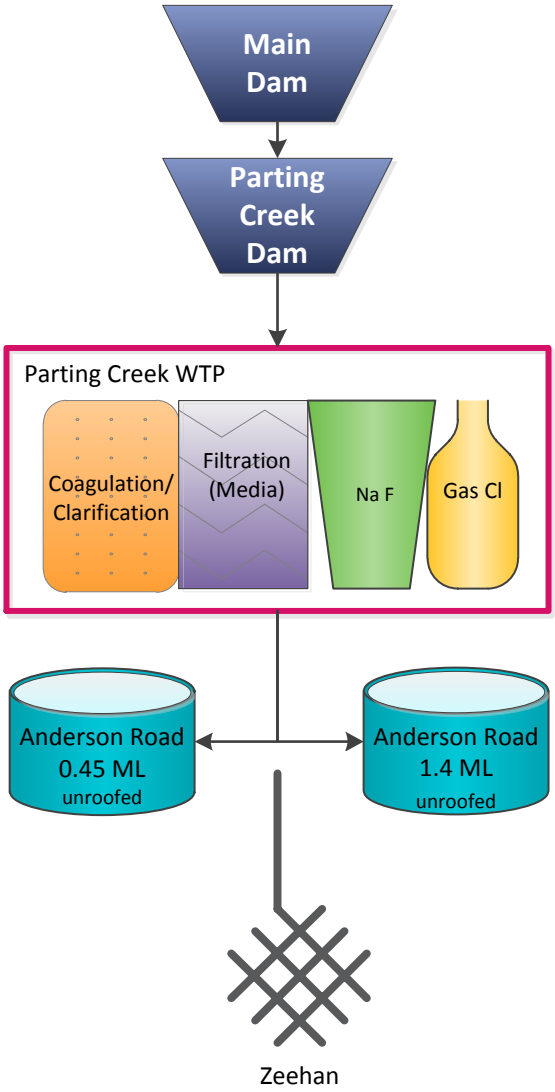


Figure 6.72.1-a Zeehan system schematic

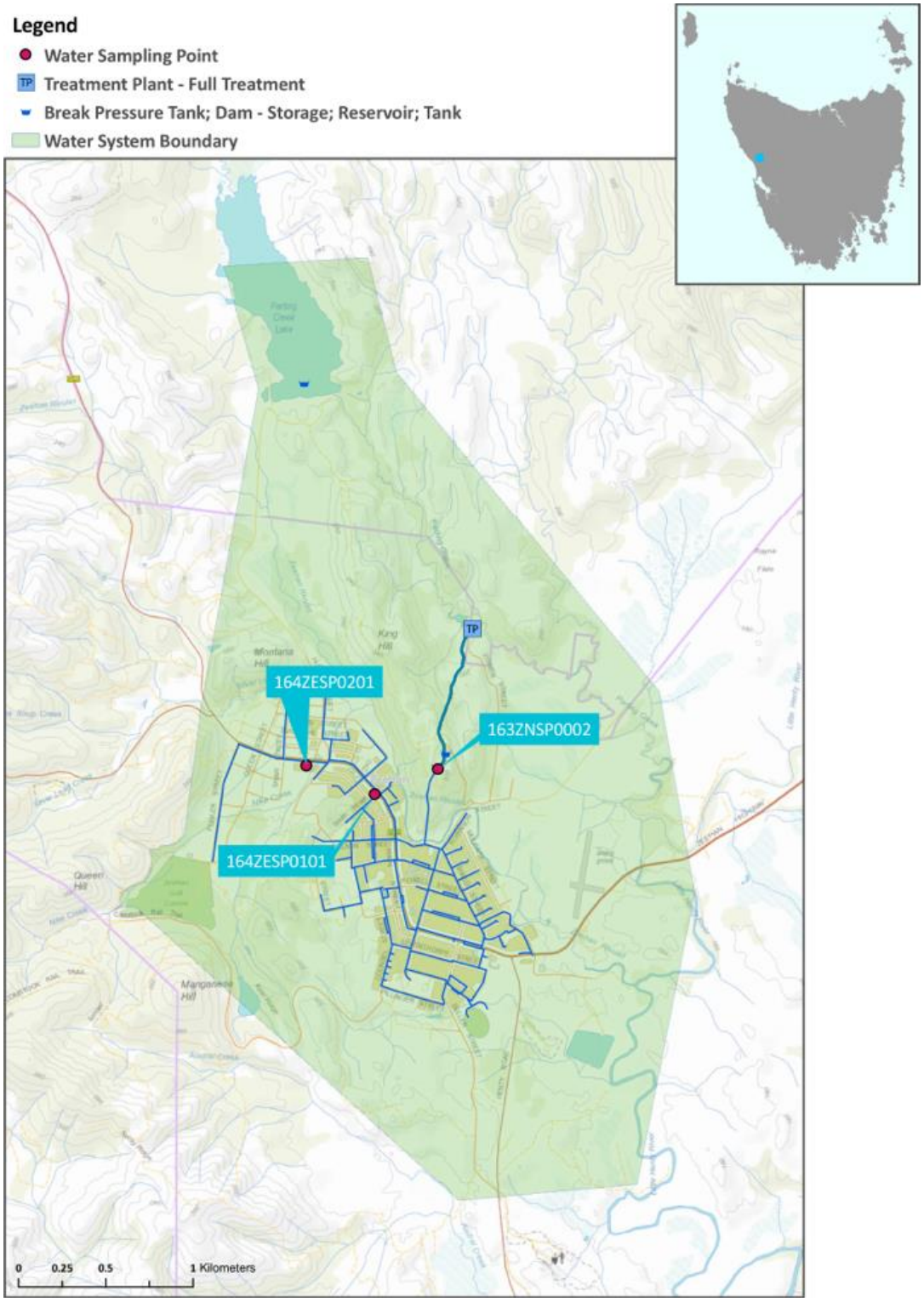


Figure 6.72.1-b Map of Zeehan monitoring system

6.72.2. Summary of Annual Reticulation Compliance (2016–17)

Table 6.72.2-a Compliance sampling program

Planned compliance sampling program (2016-17)								
Site name	Site Code	Micros	Metals	DBP	Fluoride (Field)	Fluoride (Lab)	Chemical Profile	Process Chemicals
Zeehan/WTP Treated Storage Sample Point	163ZNSP0002	W	n/a	n/a	n/a	n/a	Q	M
Zeehan/Main Street Sample Point	164ZESP0101	W	n/a	n/a	W	M	n/a	n/a
Zeehan/CMW Depot Sample Point	164ZESP0201	W	Q	Q	W	n/a	Q	n/a
Number Planned Samples		**156**	**4**	**4**	**104**	**12**	**8**	**12**
Number Samples Tested		**152#**	**4**	**4**	**104**	**12**	**8**	**11***

- # Four micro samples missed for site 163ZNSP0002: Zeehan WTP Treated Storage Sample Point due to site inaccessibility.
- * Process chemicals missing in June 2017 for site 163ZNSP0002: Zeehan/WTP Treated Storage Sample Point due to sampling error.

6.72.3. Summary of current and historic performance (2012-17)

Table 6.72.3-a Historical health performance overview (5 year comparison)

Historical health performance overview (5 year comparison)					
Indicator	2012-13	2013-14	2014-15	2015-16	2016-17
Microbiological	100.0%	100.0%	99.4%	98.7%	100.0%
Fluoride	n/a	n/a	100.0%	100.0%	100.0%
Metals	n/a	100.0%	100.0%	100.0%	100.0%
Disinfection by products	n/a	100.0%	100.0%	100.0%	100.0%

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

Table 6.72.3-b Distribution fluoride testing overview (5 year comparison)

Distribution fluoride testing overview (5 year comparison)					
Indicator	**2012-13**	**2013-14**	**2014-15**	**2015-16**	**2016-17**
Exceeding 1.5 mg/L	n/a	n/a	0	0	0
Within target range (%)	n/a	n/a	72.0%	94.7%	97.1%
Mean dose (mg/L)	n/a	n/a	0.81	0.91	0.93

on or below target within 10% of target greater than 10% outside target

Refer to Section 5.2 for reporting methodology

6.72.4. Analysis of current health performance (2016-17)

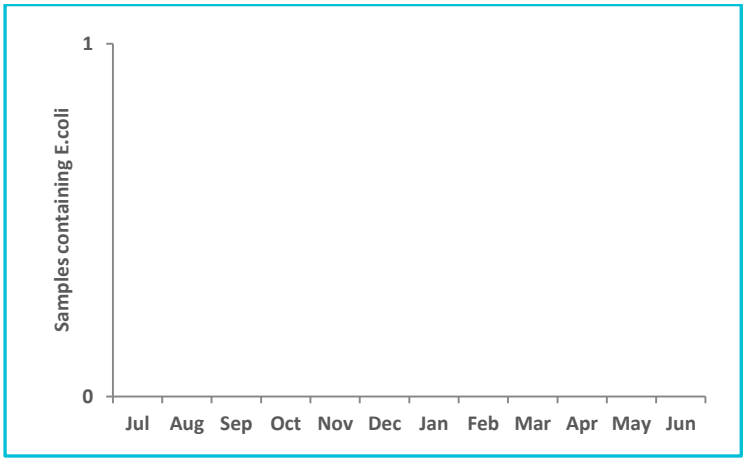


Figure 6.72.4-a Microbiological non-compliances by month (2016-17)

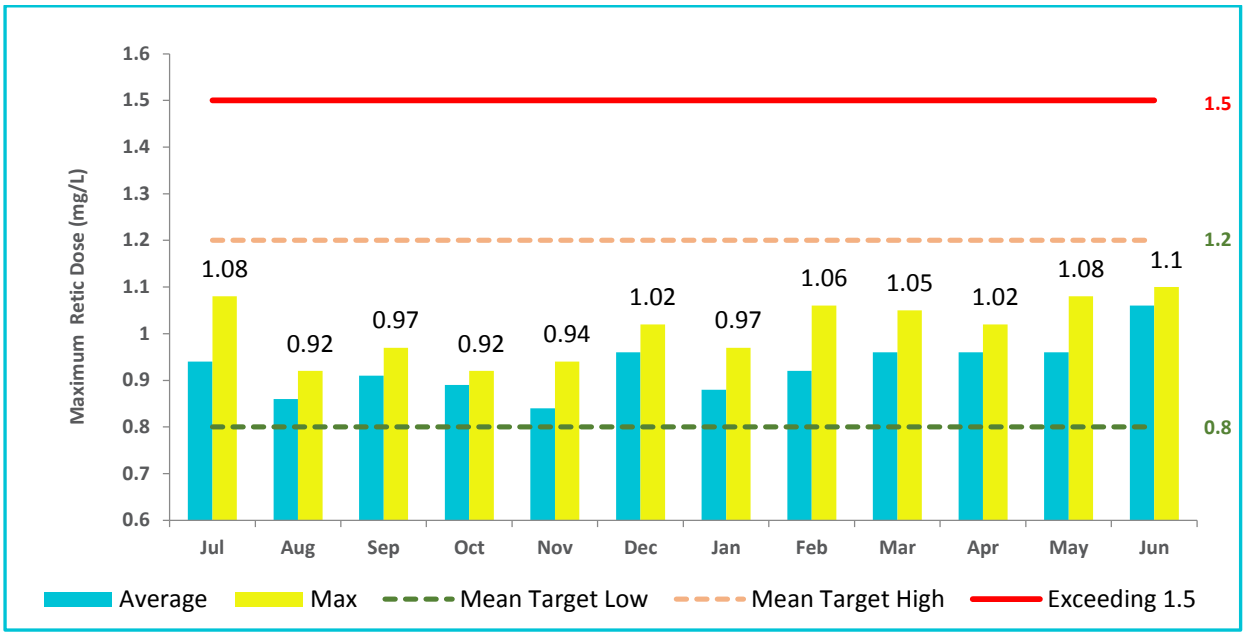


Figure 6.72.4-b Average reticulation fluoride dose by month (2016-17)

Table 6.72.4-a Metals performance 2016-17

Metals – health regulated parameters (2016–17)								
Parameter	**Limit**	**Unit**	**Samples**	**Exceedances**	**Performance %**	**Mean**	**Min.**	**Max.**
Antimony	0.003	mg/L	4	0	100	<0.0005	<0.0005	<0.0005
Arsenic	0.01	mg/L	15	0	100	0.0006	<0.0003	<0.001
Barium	2	mg/L	15	0	100	0.0043	0.0031	0.006
Cadmium	0.002	mg/L	15	0	100	0.0001	<0.0001	0.0001
Chromium	0.05	mg/L	15	0	100	0.0005	<0.0001	<0.001
Copper	2	mg/L	4	0	100	0.0015	0.0002	0.003
Lead	0.01	mg/L	15	0	100	0.00034	<0.0001	0.0005
Manganese	0.5	mg/L	15	0	100	0.017	0.013	0.0275
Mercury	0.001	mg/L	15	0	100	0.00006	<0.00003	0.00017
Molybdenum	0.05	mg/L	4	0	100	0.0003	<0.0001	<0.0005
Nickel	0.02	mg/L	15	0	100	0.0013	<0.0001	0.0022
Selenium	0.01	mg/L	15	0	100	0.001	<0.0001	<0.002

- # Process chemicals missing in June 2017 for site 163ZNSP0002: Zeehan/WTP Treated Storage Sample Point due to sampling error.

Table 6.72.4-b Disinfection by product performance 2016-17

Disinfection by products – health regulated parameters (2016–17)								
Parameter	Limit	Unit	Samples	Exceedances	Performance %	Mean	Min.	Max.
Dichloroacetic acid	100	µg/L	4	0	100	2.25	<1	5
Monochloroacetic acid	150	µg/L	4	0	100	<5	<3	<5
Trichloroacetic acid	100	µg/L	4	0	100	34.25	20	43
Total trihalomethanes	250	µg/L	4	0	100	87.25	60	109

6.72.5. Analysis of overall system performance (2016-17)

Table 6.72.5-a General physical performance 2016-17

General physical parameters (2016-17)					
Parameter	Unit	Guideline Value	Mean	Min	Max
Chlorine residual	mg/L	0.1 - <0.8	0.63	0.03	2.44
Colour True	HU	15	<1	<1	<1
pH	Units	6.5 – 8.5	7.43	7.13	7.98
Turbidity	NTU	1	0.43	0.17	7.50

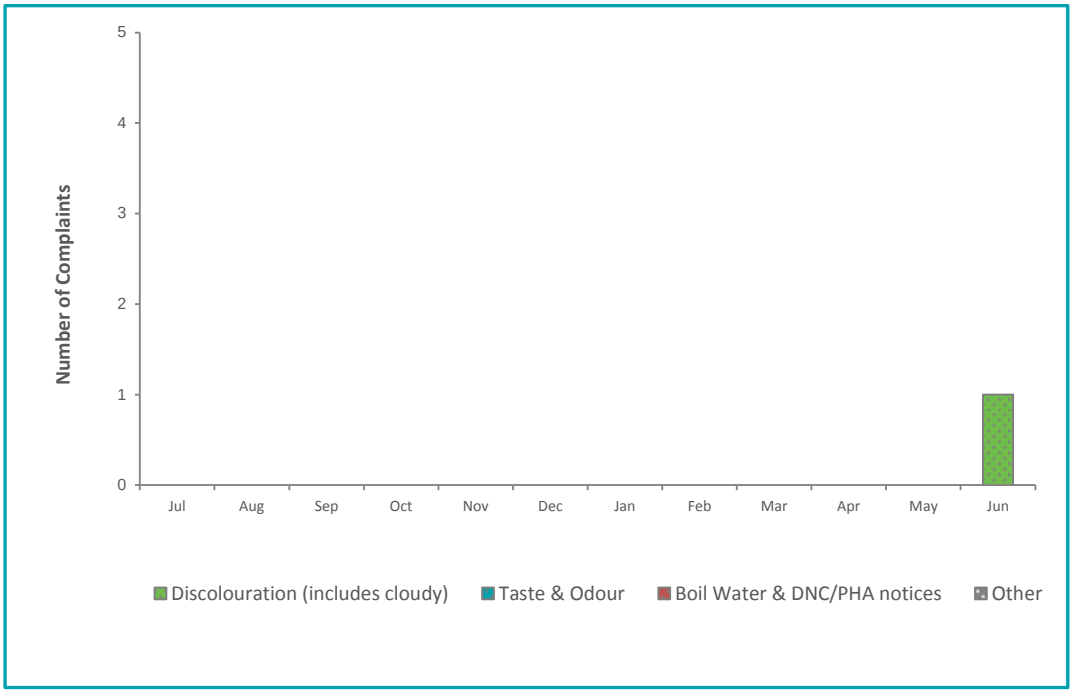


Figure 6.72.5-b Customer complaints by month and type

Appendix A – List of towns serviced

Towns	Drinking Water Systems
Abbotsfield	Greater Hobart
Acton Park	Greater Hobart
Adventure Bay	Adventure Bay
Akaroa	St Helens
Ambleside	Forth River (Devonport)
Austins Ferry	Greater Hobart
Avoca	Avoca
Bagdad	Greater Hobart
Battery Point	Greater Hobart
Beaconsfield	West Tamar
Beauty Point	West Tamar
Bell Bay	North Esk
Bellerive	Greater Hobart
Berriedale	Greater Hobart
Bicheno	Bicheno
Blackmans Bay	Greater Hobart
Blackstone Heights	South Esk
Blythe Heads	Leven River (Penguin)
Bonnet Hill	Greater Hobart
Bothwell	Bothwell
Bracknell	Bracknell
Branxholm	Branxholm
Bridgewater	Greater Hobart
Bridport	Bridport
Brighton	Greater Hobart
Burnie	Pet River (Burnie)
Campania	Greater Hobart
Campbell Town	Campbell Town
Carrick	South Esk
Cascades	Greater Hobart

Towns	Drinking Water Systems
Castle Forbes Bay	Greater Hobart
Chasm Creek	Pet River (Burnie)
Chigwell	Greater Hobart
Claremont	Greater Hobart
Clarendon Vale	Greater Hobart
Colebrook	Colebrook
Coles Bay	Coles Bay
Collinsvale	Greater Hobart
Conara	Conara
Cornelian Bay	Greater Hobart
Cornwall	Cornwall
Crabtree	Rocky Creek
Cressy	Longford
Currie	Currie
Cygnet	Huon Valley
Cygnet – Nicholls Rivulet	Huon Valley
Deloraine	Deloraine
Derby	Derby
Derwent Park	Greater Hobart
Deviot	West Tamar
Devon Hills	Longford
Devonport	Forth River (Devonport)
Dilston	North Esk
Dover	Dover
Dowsing Point	Greater Hobart
Dynnyrne	Greater Hobart
Dysart	Greater Hobart
East Devonport	Forth River (Devonport)
East Launceston	Distillery Creek
Electrona	Greater Hobart
Ellendale	Ellendale
Elwick	Greater Hobart

Towns	Drinking Water Systems
Epping Forest	Epping Forest
Eugenana	Forth River (Devonport)
Evandale	Longford
Exeter	West Tamar
Exton	Westbury
Fentonbury	Greater Hobart
Fern Tree	Greater Hobart
Fingal	Fingal
Firthside	Greater Hobart
Flagstaff Gully	Greater Hobart
Forth	Forth River (Devonport)
Franklin	Huon Valley
Franklin – Jacksons Road	Franklin – Jacksons Road
Freycinet National Park Visitors Centre	Coles Bay
Gagebrook	Greater Hobart
Gawler	Gawler River (Ulverstone)
Geeveston	Huon Valley
Geilston Bay	Greater Hobart
George Town	North Esk
Gladstone	Gladstone
Glebe	Greater Hobart
Glen Huon	Huon Valley
Glengarry	West Tamar
Glenlusk	Greater Hobart
Glenorchy	Greater Hobart
Goodwood	Greater Hobart
Gormanston	Gormanston
Granton	Greater Hobart
Grassy	Grassy
Gravelly Beach	West Tamar
Green Point	Greater Hobart
Gretna	Gretna

Towns	Drinking Water Systems
Grindelwald	West Tamar
Grove	Rocky Creek
Hadspen	South Esk
Hagley	Westbury
Hamilton	Hamilton
Havenbrook	West Tamar
Hawley	Forth River (Devonport)
Herrick	Herrick
Heybridge	Leven River (Penguin)
Hillcrest	Pet River (Burnie)
Hillwood	North Esk
Hobart	Greater Hobart
Howden	Greater Hobart
Howrah	Greater Hobart
Howth	Leven River (Penguin)
Huntingfield	Greater Hobart
Huonville (partial)	Huon Valley
Huonville (partial)	Rocky Creek
Invermay	Distillery Creek
Irishtown	Deep Creek (Smithton)
Judbury	Judbury
Karoola	North Esk
Kayena	West Tamar
Kempton	Greater Hobart
Kings Meadows (partial)	Distillery Creek
Kings Meadows (partial)	North Esk
Kings Meadows (partial)	South Esk
Kingston	Greater Hobart
Kingston Beach	Greater Hobart
Lady Barron	Lady Barron
Latrobe	Forth River (Devonport)
Lauderdale	Greater Hobart

Towns	Drinking Water Systems
Launceston	Distillery Creek
Legana	West Tamar
Legerwood	Legerwood
Leith	Forth River (Devonport)
Lenah Valley	Greater Hobart
Lilydale	North Esk
Lindisfarne	Greater Hobart
Longford	Longford
Low Head	North Esk
Lower Sandy Bay	Greater Hobart
Lutana	Greater Hobart
Mangalore	Greater Hobart
Maranoa Heights	Greater Hobart
Margate	Greater Hobart
Mathinna	Mathinna
Maydena	Maydena
Mayfield	North Esk
Melrose	Forth River (Devonport)
Merton	Greater Hobart
Midway Point	Greater Hobart
Mole Creek	Mole Creek
Montagu Bay	Greater Hobart
Montello	Pet River (Burnie)
Montrose	Greater Hobart
Moonah	Greater Hobart
Mornington	Greater Hobart
Mount Nelson	Greater Hobart
Mount Rumney	Greater Hobart
Mount Stuart	Greater Hobart
Mountain River	Mountain River
Mowbray	Distillery Creek
National Park	Greater Hobart

Towns	Drinking Water Systems
New Norfolk	Greater Hobart
New Town	Greater Hobart
Newnham	North Esk
Newstead	North Esk
Nook	Lake Barrington (Railton, Sheffield)
North Hobart	Greater Hobart
Norwood	North Esk
Oakdowns	Greater Hobart
Oatlands	Oatlands
Old Beach	Greater Hobart
Orford	Orford
Otago	Greater Hobart
Ouse	Ouse
Paloona	Forth River (Devonport)
Penguin	Leven River (Penguin)
Perth	Longford
Pioneer	Pioneer
Pontville	Greater Hobart
Port Huon	Huon Valley
Port Sorell	Forth River (Devonport)
Preservation Bay	Leven River (Penguin)
Prospect Vale	South Esk
Punchbowl	North Esk
Queenstown	Queenstown
Railton	Lake Barrington (Railton, Sheffield)
Raminea	Dover
Ranelagh (partial)	Huon Valley
Ranelagh (partial)	Rocky Creek
Ravenswood	North Esk
Relbia	North Esk
Richmond	Greater Hobart
Ridgeway	Greater Hobart

Towns	Drinking Water Systems
Ridgley	Pet River (Burnie)
Ringarooma	Ringarooma
Risdon	Greater Hobart
Risdon Vale	Greater Hobart
Riverside	West Tamar
Rocherlea	North Esk
Roches Beach	Greater Hobart
Rocky Creek	Rocky Creek
Rokeby	Greater Hobart
Romaine	Pet River (Burnie)
Rose Bay	Greater Hobart
Rosebery	Rosebery
Rosetta	Greater Hobart
Rosevears	West Tamar
Rosny	Greater Hobart
Rosny Park	Greater Hobart
Ross	Campbell Town
Rossarden	Rossarden
Sandy Bay	Greater Hobart
Scamander	Scamander
Scottsdale	Scottsdale
Seven Mile Beach	Greater Hobart
Shearwater	Forth River (Devonport)
Sheffield	Lake Barrington (Railton, Sheffield)
Shorewell Park	Pet River (Burnie)
Sidmouth	West Tamar
Sisters Beach	Cam River (Wynyard, Somerset)
Smithton	Deep Creek (Smithton)
Snug	Greater Hobart
Somerset	Cam River (Wynyard, Somerset)
Sorell	Greater Hobart
South Hobart	Greater Hobart

Towns	Drinking Water Systems
South Launceston	Distillery Creek
Southern Midlands	Greater Hobart
Spreyton	Forth River (Devonport)
Springfield (Raw water waysiders)	Scottsdale
St Helens	St Helens
St Leonards	North Esk
St Marys	St Marys
Stanley	Deep Creek (Smithton)
Stephensdale	West Tamar
Stieglitz	St Helens
Strahan	Manuka River (Strahan)
Strathblane	Dover
Sulphur Creek	Leven River (Penguin)
Summerhill	Distillery Creek
Swan Bay	North Esk
Swan Point	West Tamar
Swansea	Swansea
Taroona	Greater Hobart
Tolmans Hill	Greater Hobart
Tranmere	Greater Hobart
Trevallyn	West Tamar
Triabunna	Triabunna
Triabunna (seasonally)	Orford
Tullah	Tullah
Tunbridge	Tunbridge
Turners Beach	Gawler River (Ulverstone) * Can also be supplied by Forth
Ulverstone	Gawler River (Ulverstone)
Upper Burnie	Pet River (Burnie)
Waratah	Waratah
Warrane	Greater Hobart
Waverley	North Esk
Wayatinah	Wayatinah

Towns	Drinking Water Systems
Wesley Vale	Forth River (Devonport)
West Hobart	Greater Hobart
West Launceston	Distillery Creek
West Ulverstone	Gawler River (Ulverstone)
Westbury	Westbury
Western Junction	Longford
Westerway	Greater Hobart
Whitemark	Whitemark
Windermere	North Esk
Winnaleah	Winnaleah
Wivenhoe	Pet River (Burnie)
Wynyard	Cam River (Wynyard, Somerset)
Yolla	Dowlings Creek (Yolla)
Youngtown	North Esk
Zeehan	Zeehan

Annual Drinking Water Quality Report

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